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AFFDL-TR-67-123  
VOLUME III

AD825369

**PROJECT HICAT  
AN INVESTIGATION OF HIGH ALTITUDE  
CLEAR AIR TURBULENCE**

*WALTER M. CROOKS, FREDERIC M. HOBLIT, DAVID T. PROPHET, et al*

*LOCKHEED-CALIFORNIA COMPANY*

TECHNICAL REPORT AFFDL-TR-67-123  
VOLUME III  
Appendixes IX and X

NOVEMBER 1967

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AIR FORCE FLIGHT DYNAMICS LABORATORY  
RESEARCH AND TECHNOLOGY DIVISION  
AIR FORCE SYSTEMS COMMAND  
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

JAN 19 1968

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**Appendixes IX and X**

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## FOREWORD

This report was prepared by the Lockheed-California Company, Burbank, California, for the Air Force Flight Dynamics Laboratory, Wright-Patterson Air Force Base, Ohio, under Contract AF33(657)-11143. The contract was for "Redirection and Addition of Effort to the Maintenance of Instrumentation and Equipment for Collection of High Altitude Clear Air Turbulence Data", Project No. 1469. Turbulence research is presently being conducted by the Air Force Flight Dynamics Laboratory under the ALLCAT Program, ADP 682E. The Lockheed-California Company report number is LR 20771, dated 10 July 1967. This report covers work conducted from 12 February 1965 through 10 July 1967.

Air Force Flight Dynamics Laboratory management responsibility was under the ALLCAT Program Director, Mr. E. Brazier, with Mr. N. V. Loving as the Technical Coordinator. Initially the Air Force Project Engineer was Mr. N. V. Loving; Mr. J. P. Boone later assumed responsibility for the Project. The Lockheed-California Company Program Manager was Mr. C. B. Fabian with Mr. W. M. Crooks as the Technical Leader.

All HICAT aircraft operations and field team logistics support were under the direction of Lt Col J. J. King, USAF, Air Force Flight Test Center, VSTOL Branch Flight Operations, Edwards Air Force Base, California.

Special acknowledgements are due to the New Zealand Meteorological Services at Wellington and the Christchurch personnel who developed the local forecasts, and in Australia, the Australian Bureau of Meteorology. Particular thanks are due Mr. Anthony Powell of the Australian Bureau of Meteorology who prepared the high altitude forecasts and the flight plans, and to Mr. G. K. Rider of the Structures Division of the Australian Aeronautical Research Laboratories who helped analyze the meteorological data in Australia.

Acknowledgement is made for the valuable assistance of the following Lockheed-California Company personnel: Mr. R. E. Storey, data analysis; Messrs. D. W. Thompson and P. L. Underwood, field team operation; Messrs. R. H. Cook, H. J. Cail, and R. C. Quist, instrumentation; Messrs. R. D. Baker, E. A. Goulette, and P. J. Tersigni, data processing; Messrs. G. E. Abrahms and W. W. Hildreth, meteorology; and Mr. R. P. Boal, editor.

This report consists of three volumes. Volume I contains the main body of the report plus Appendix I, HICAT Test Summary, Appendix II, Instrumentation System, Appendix III, Data Processing, and Appendix IV, Derivation of Gust Velocity Equations. Volume II contains Appendix V, HICAT Flight Test Log, Appendix VI, Time Histories, Appendix VII, Gust Velocity Power Spectra, and

Appendix VIII, Mathematically Defined Gust Velocity Power Spectral Density Curves. Volume III contains Appendix IX, Flight Descriptions and Flight Track Maps and Appendix X, Meteorological Data Tables.

This technical report has been reviewed and is approved.

*James C. Horsley Jr.*  
JAMES C. HORSLEY, JR., Major, USAF  
Chief, Experimental Mechanics Branch  
Structures Division

#### ABSTRACT

This report describes the high altitude clear air turbulence (HICAT) flight investigation with primary emphasis upon the results achieved since 15 February 1965. On this date the program was redirected to utilize a new digital instrumentation system for the measurement of CAT in the wavelength range from about 100 feet to 60,000 feet. The program effort required the measurement of CAT velocity components at altitudes of 45,000 to 70,000 feet in seven geographic areas. Instrumentation carried aboard the HICAT aircraft, an Air Force U-2, consisted of a PCM System, an Inertial Navigation System, aerodynamic and aircraft response sensors including a fixed vane gust probe, oscillograph recorder, and a digital magnetic tape recorder.

The program objective is to determine the statistical characteristics of high altitude CAT so as to improve structural design criteria. Overall, 29.2 hours of high altitude CAT were located and recorded in flights covering over 256,000 miles from bases in California, Massachusetts, Alaska, Hawaii, Puerto Rico, New Zealand, and Australia. Actual vertical, lateral, and longitudinal gust velocity time histories have been calculated from the measurements and used to obtain gust velocity power spectra. Derived equivalent gust velocities were also calculated and peak counted. Meteorological factors were considered in categorizing and correlating data. Time histories and power spectra are found in Volume II of this report, while meteorological data and flight track maps are included in Volume III.

Distribution of this Abstract is unlimited.

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## APPENDIX IX

### FLIGHT DESCRIPTION AND FLIGHT TRACK MAPS

#### GENERAL

Flight descriptions and flight track maps are presented in this appendix for all HICAT search flights beginning with Test 39. Similar information for aborted flights, ferry flights, and other non-search flights is not presented because of the lack of substantiating data.

The flight descriptions appear opposite the track maps and provide a summary of the meteorological situation on the day of the flights together with the pilot's description of the flights as determined from his notes, his cloud photographs, and the taped record of his debriefing.

#### DETAILS OF TRACK MAP PREPARATION

This section describes the base maps used for plotting the tracks, the information on each track map, and the method of plotting the tracks and turbulence runs. A list of the flights which were plotted from distance/time data rather than LN-3 (x,y) measurements is also included.

A base map was made for each operational site, using USAF Global Navigation charts (GNC) except for the Hawaiian Islands, for which a USAF Jet Navigational chart (JNC) was used. Both types of chart are based on a Lambert conformal conic projection with standard parallels. The scale for the GN charts is 1:5,000,000 and for the JN charts, 1:2,000,000. A blank base map with the number of the particular GNC or JNC used is presented for each operational base. These maps show the total flight area for each operational base so that information obscured or excluded on individual track maps may be observed. For the GNC base maps, mountains and hills are represented by shading with elevations above sea level given for appropriate locations. For the Hawaiian Islands (Hickam AFB), the topography is shown by labeled contour lines. Names of meteorological reporting stations have been underlined on all maps. For the northern hemisphere, these reporting stations are usually high-altitude radiosonde stations. In the southern hemisphere, rawinsonde stations have also been included. Crosses on the maps represent distances in the north-south direction (parallel to longitude lines) and the east-west direction (parallel to latitude lines) with the operational base as the 0-0 point. For the GNC maps, the grid is 100 nautical miles, and for Hawaii the grid is 50 nautical miles.

A complete flight track map includes the track of the flight, the location and duration of each turbulence patch along the flight track with the reference test number, run number, test date, and takeoff and landing times in Greenwich

## Appendix IX

mean time (Z time) where necessary explanatory notes. The run numbers identify the CAT samples and correspond to those used elsewhere in this report. Turbulence runs are indicated by narrow rectangles along the flight track. Note that the date of each flight is in local time. In the western hemisphere the local time and Z time are usually the same date. However, in New Zealand and Australia, the takeoff was usually the preceding day in Z time but the landing was the same day in Z and local time.

Most of the flight tracks were plotted from the LN-3 navigation information obtained from the pilot cards. In a few cases flight tracks were constructed from the information recorded on the debriefing tape. All available information from pilot and LN-3 computer output (usually only the x-y location of turbulence) were used to construct the flight tracks. The pilot card information usually consisted of various fixes identified by time, x-y position, city names, and Vortac stations. The flight track was then constructed by plotting all available location points and connecting the points. Turbulence runs were plotted in either one of two ways. The first was to plot the start and end x-y positions of the run, which were supplied from the computer output. However, in some cases and for a variety of reasons, the x-y positions from the LN-3 were not available, and a distance-time method of proportioning appropriate flight legs was used. From the editing notes of the oscillograph record, the time and duration of each run was determined. The time of occurrence was then located between the two most appropriate time-location fixes from the pilot notes. The distance between the two points was then divided by the travel time between the two points to yield an approximate average speed in nautical miles per minute relative to the surface distance covered. The start and end time of the run was then proportioned between the two points.

The only dimension of turbulence measured is that along the flight track. For some of the tests, the runs were clustered together so that only the outline of the turbulent area could be meaningfully displayed. More detailed information about run locations on these tests, is contained in the HICAT test Summary in Appendix I, Volume I.

One slight source of plotting error should be mentioned. The base maps have a grid system of x-y relative to true north-south and east-west which is in turn related to the Lambert conformal conic projection used. On the other hand, the LN-3 grid system of x-y in polar regions is not exactly a true north-south, east-west system at a large distance from the origin. This difference is small even in the polar regions but did cause an error in constructing track map grids for the Alaska flights. Here at 400-500 nautical miles east or west of Elmendorf AFB (O-O), the error in y was about 40 miles. All Alaska flights have been adjusted to account for the difference in the two systems, and the flight tracks are correct relative to the land form and cultural features such as towns, etc.

The following list shows which chart, Global Navigation chart or Jet Navigation chart (JNC) was used for each base map. The tests listed are those for which tracks were plotted from oscillograph and pilot times because LN-3 data was unavailable.

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EDWARDS AFB, CALIFORNIA (North America, GNC 2N)  
Tests 39, 40, 41, 44, 46, 50, 115, 160

HICKAM AFB, HAWAII (Hawaiian Islands, JN-41N)  
Tests 63, 65, 66, 67, 68, 69, 70, 71, 73, 74, 75, 76, 77, 78

CHRISTCHURCH RAFB, NEW ZEALAND (South Pacific Ocean, GNC 21N)  
Tests 96(R-7)

LAVERTON RAFB, AUSTRALIA (Australia, GNC 14N)  
Tests 99, 109

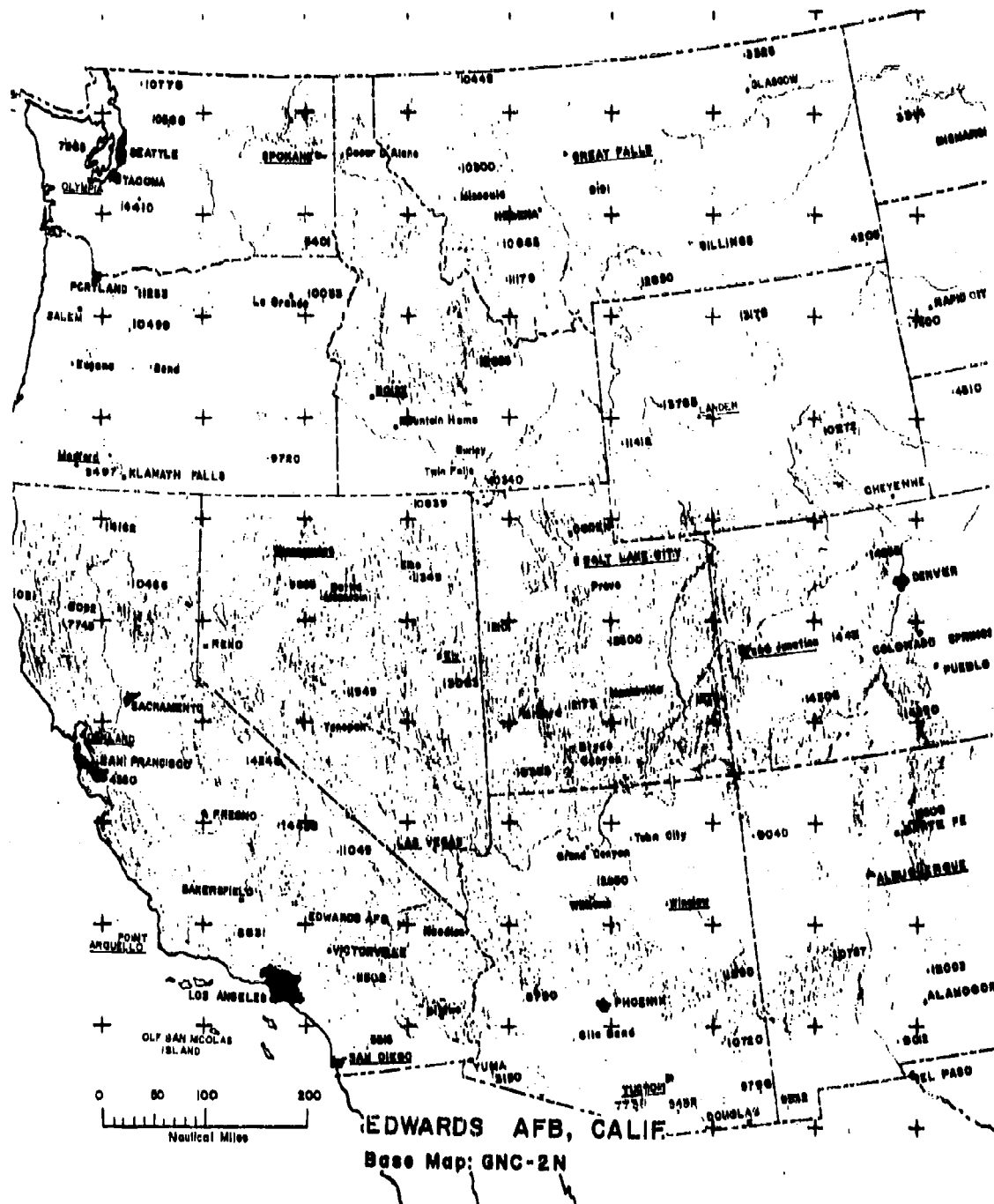
HANSCOM FLD, MASSACHUSETTS (North America, GNC 2N)  
Tests 121, 122, 124, 130, 134, 136

RAMEY AFB, PUERTO RICO (Caribbean Sea, GNC 9N)  
Tests 141, 146(R-9 and R-10)

ELMENDORF AFB, ALASKA (North Pacific Ocean GNC 6N)  
Tests 173, 174, 175



Appendix IX



Edwards AFB Operational Area Map

## Appendix IX

Test 39  
16 Nov. 1965  
Edwards AFB, Calif.

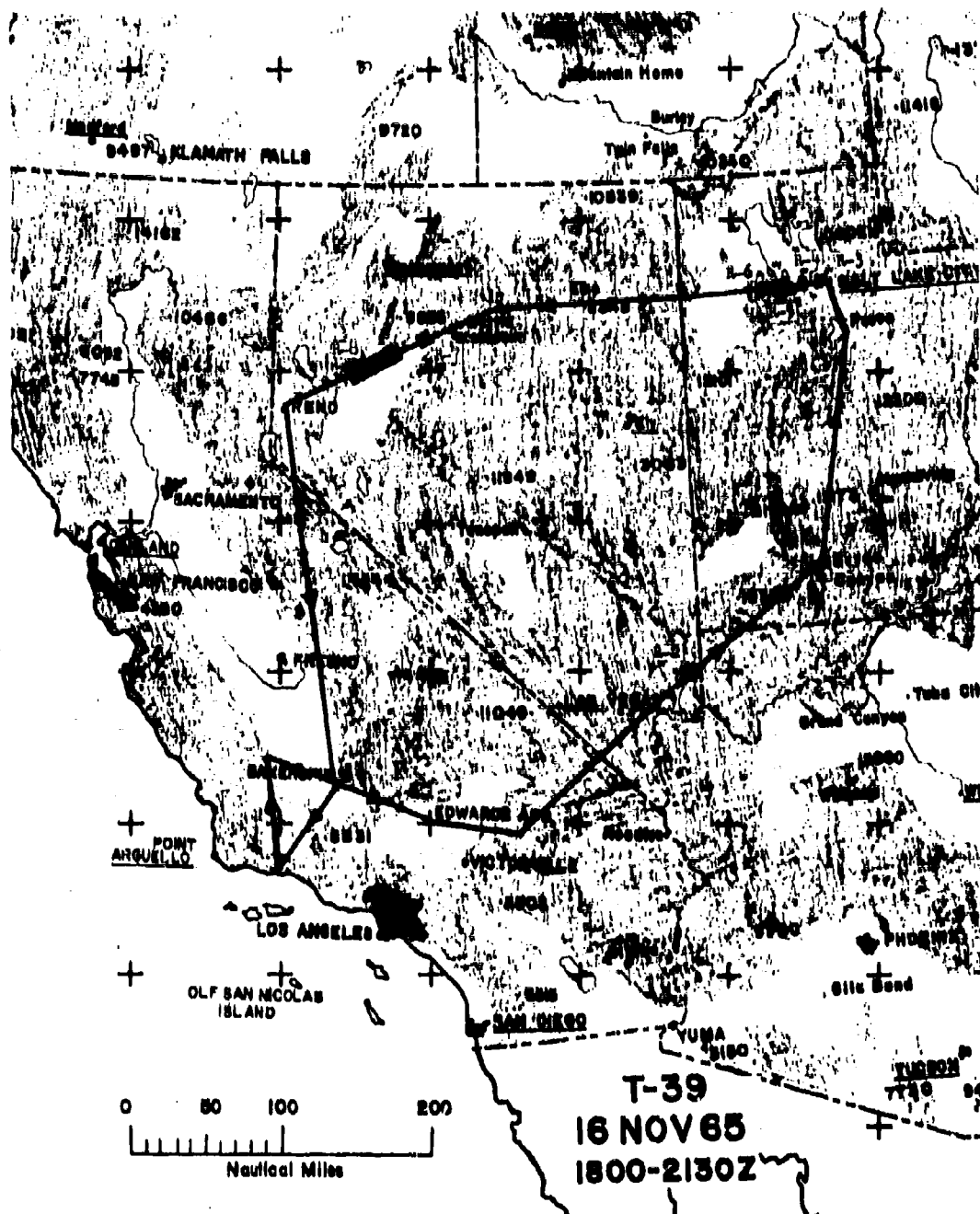
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A trough aloft off the California coast was accompanied by a southwesterly jet stream which swept up over California, Nevada, Utah, and on eastward. Maximum wind speeds were 130 knots at 35,000 to 40,000 feet.

#### Pilot Report.

Only very light turbulence was found within the altitude range 46,000 to 65,000 feet. The main areas and altitudes were near Las Vegas at 52,000 feet, in Utah over Provo at 50,000 feet, just west of Salt Lake City at 55,000 feet, east of Battle Mountain at 50,000 feet, and near Bakersfield at 50,000 feet.



## Appendix IX

Test 40  
17 Nov. 1965  
Edwards AFB, Calif.

### FLIGHT DESCRIPTION

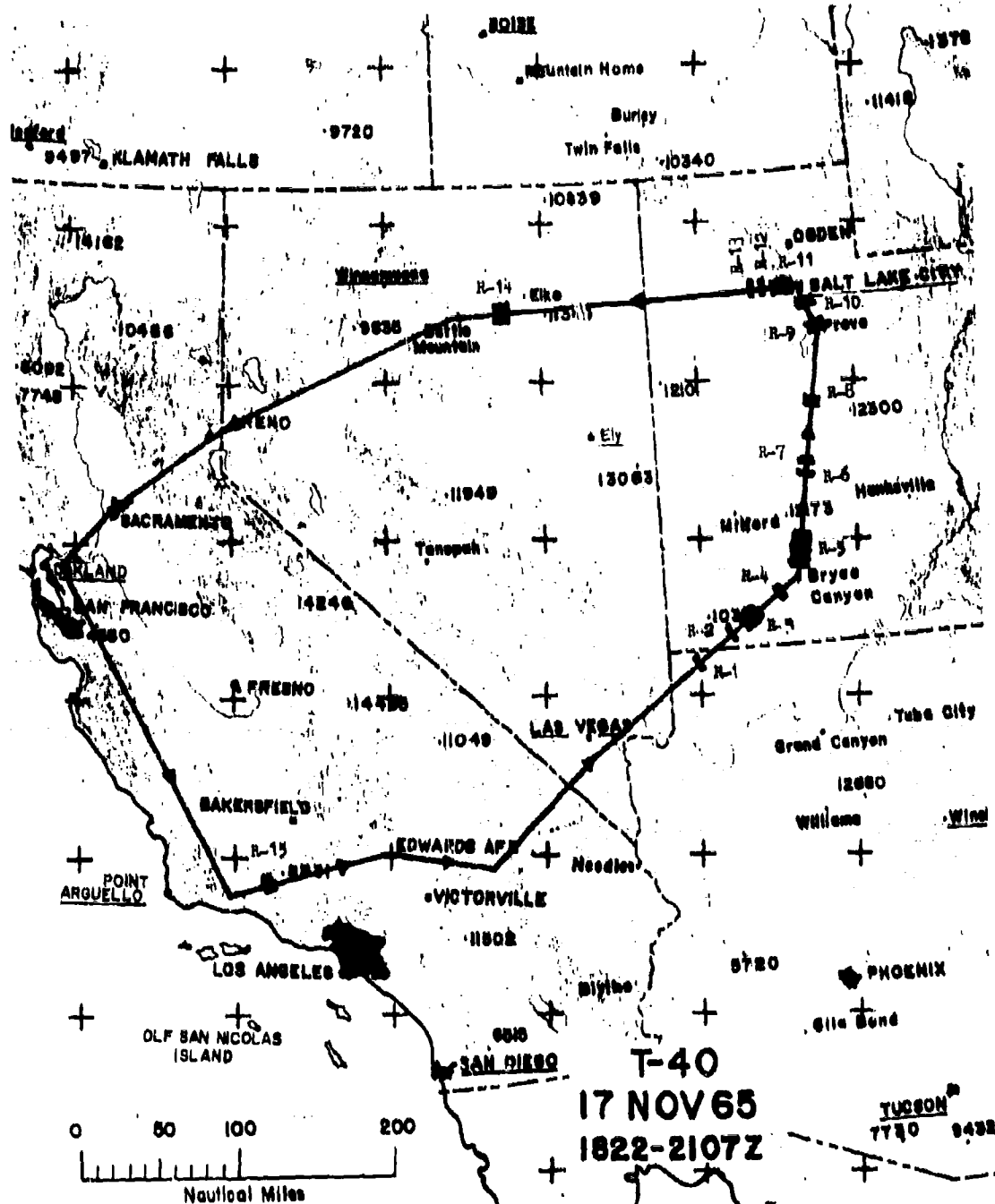
#### Meteorological Summary.

A trough of low pressure aloft centered off the coast and an associated south-westerly jet stream resulted in maximum winds of 120 knots at 35,000 to 40,000 feet over the area from Southern California across Nevada and Utah to Wyoming.

#### Pilot Report.

Considerable light turbulence was found throughout the route at various altitudes ranging from 49,000 to 65,000 feet. The first was encountered at 50,000 feet near Boulder, Nevada, and was very intermittent. About 17 minutes of intermittent light turbulence was encountered in Southern Utah near Bryce Canyon over the altitude band-band 61,000 to 63,000 feet. Other areas and altitudes of light turbulence included two minutes at 58,000 feet over central Utah, three minutes at 52,500 feet south of Provo, nine minutes at 45,000 feet between Provo and Salt Lake but upon climbing above 46,000 feet, the turbulence ceased. Near Elko, a one minute patch was found at 65,000 feet and a two minute patch was found at 61,000 feet. Another small patch was found at 53,500 feet near Battle Mountain and about 4 minutes of light turbulence was encountered at 58,500 feet just east of Reno. Patches of one-minute duration were found at 62,000 feet over the Sierra Nevada west of Reno and at 49,000 and 51,000 feet over the Santa Cruz Mountains south of San Francisco. The last turbulence encountered was for two minutes at 53,000 feet over the mountains east of Santa Barbara. Clouds over the route were mostly broken to overcast cirrus with tops around 37,000 feet.

Appendix IX



## Appendix IX

Test 41  
2 Dec. 1965  
Edwards AFB, Calif.

### FLIGHT DESCRIPTION

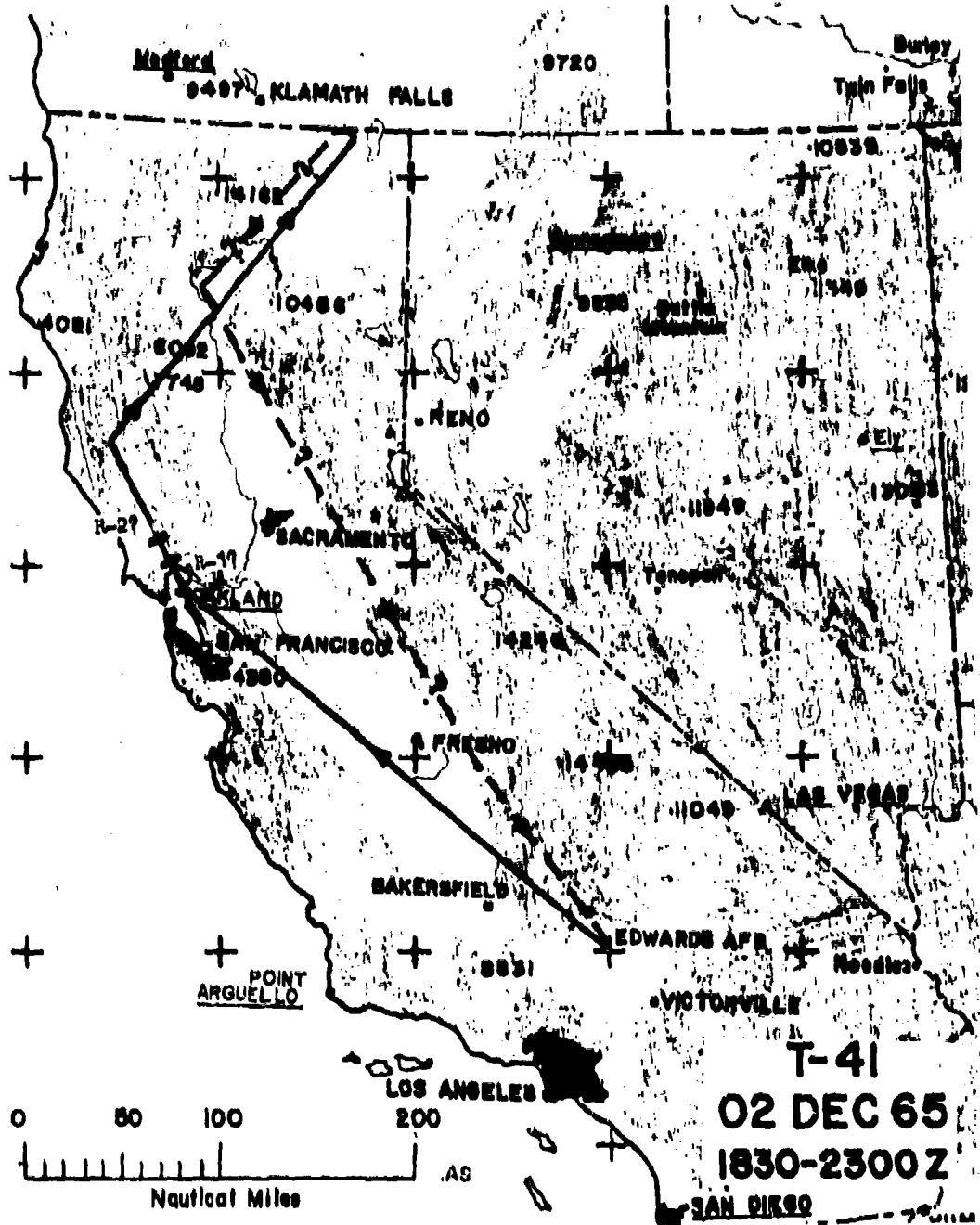
#### Meteorological Summary.

A strong ridge aloft was centered just off the California coast. A westerly jet stream with maximum winds of 110 knots over northern California and southern Oregon turned southward upon reaching Nevada and plunged southward into Arizona. There was cold air advection taking place at all levels above 200 mb (42,000 feet).

#### Pilot Report.

Only very light turbulence was encountered during the flight, primarily in the following areas: At 59,000 feet over the coastal ranges between Oakland and Ukiah, at 52,000 feet near Lakeview, Oregon, and at 60,000 feet near Redding, California. The weather was clear throughout although hazy in the Lakeview area.

Appendix IX



## Appendix IX

Test 44  
10 Feb. 1966  
Edwards AFB, Calif.

### FLIGHT DESCRIPTION

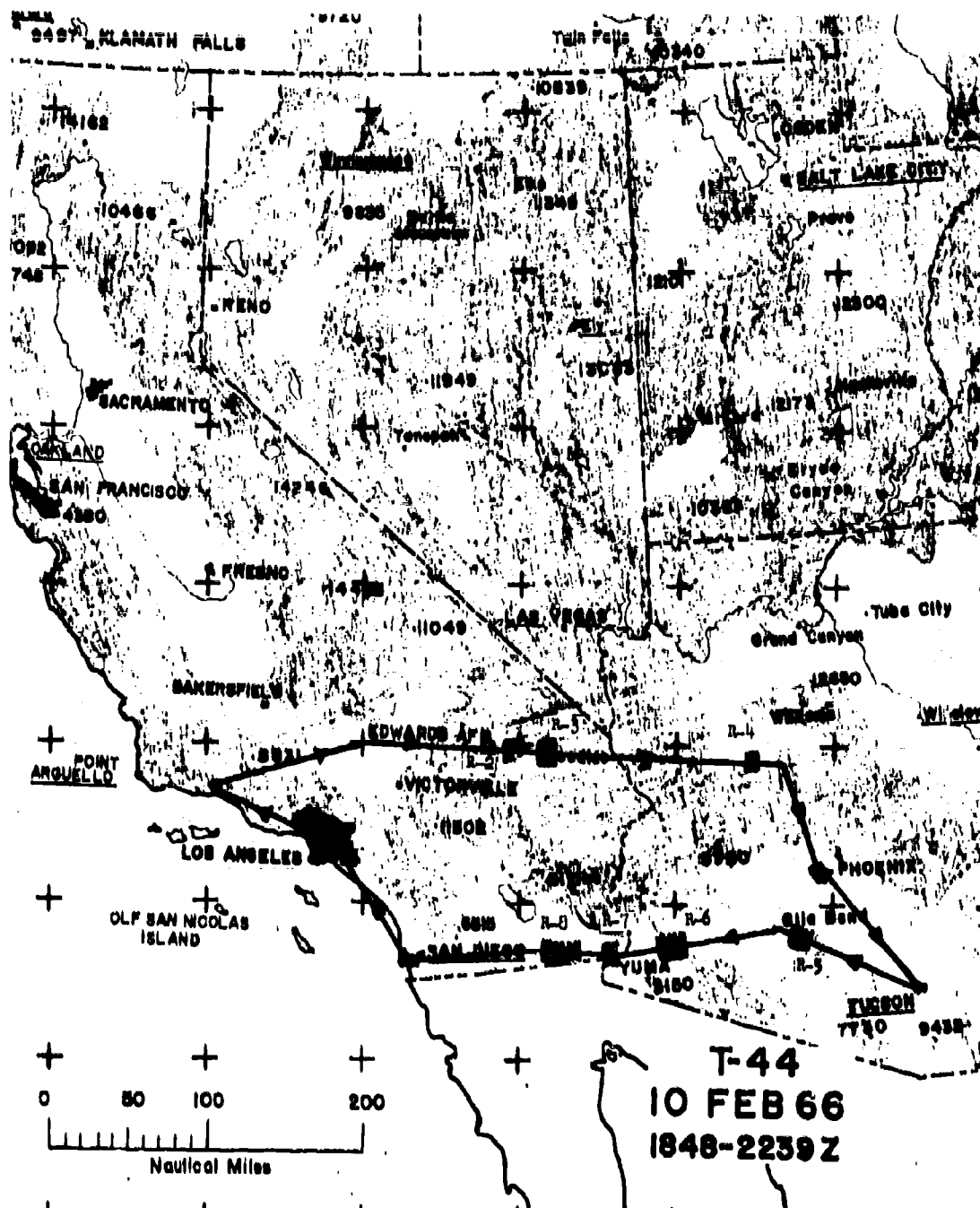
#### Meteorological Summary.

A strong trough aloft was oriented northeast-southwest from the Dakotas to Arizona and extreme southeastern California. Northerly jet stream on the west side of the trough aloft over California turned and became southwesterly over southern Arizona and New Mexico. Maximum speed in the jet over southern California was 120 knots at 30,000 feet.

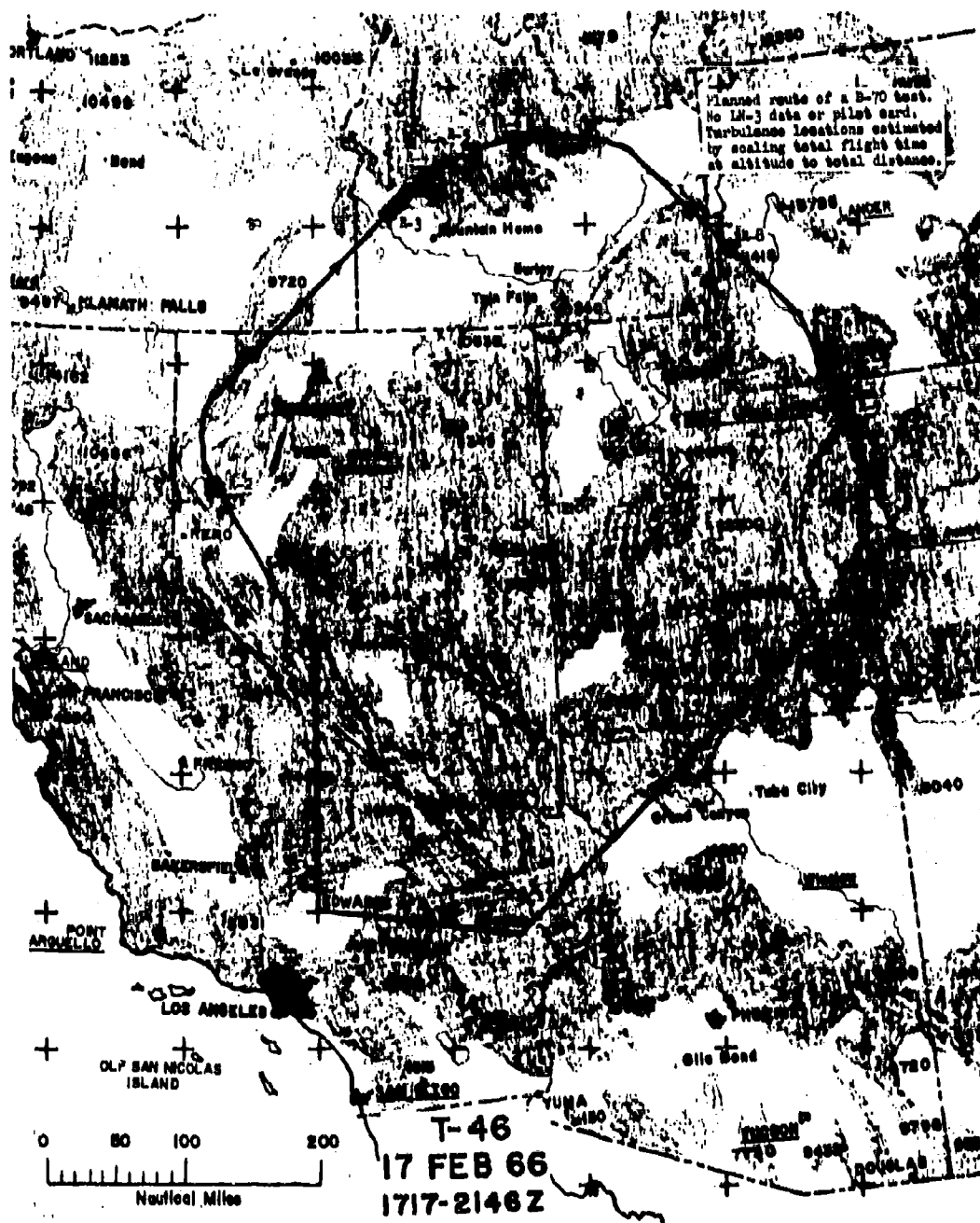
#### Pilot Report.

The pilot made no note of experiencing any turbulence in the altitude range 50,000 to 67,000 feet. However, the oscillograph record indicated patches of light turbulence occurred throughout extreme southeastern California and southwestern Arizona coinciding with the area of the trough aloft.





# Appendix IX



## Appendix IX

Test 50  
22 March 1966  
Edwards AFB, Calif.

### FLIGHT DESCRIPTION

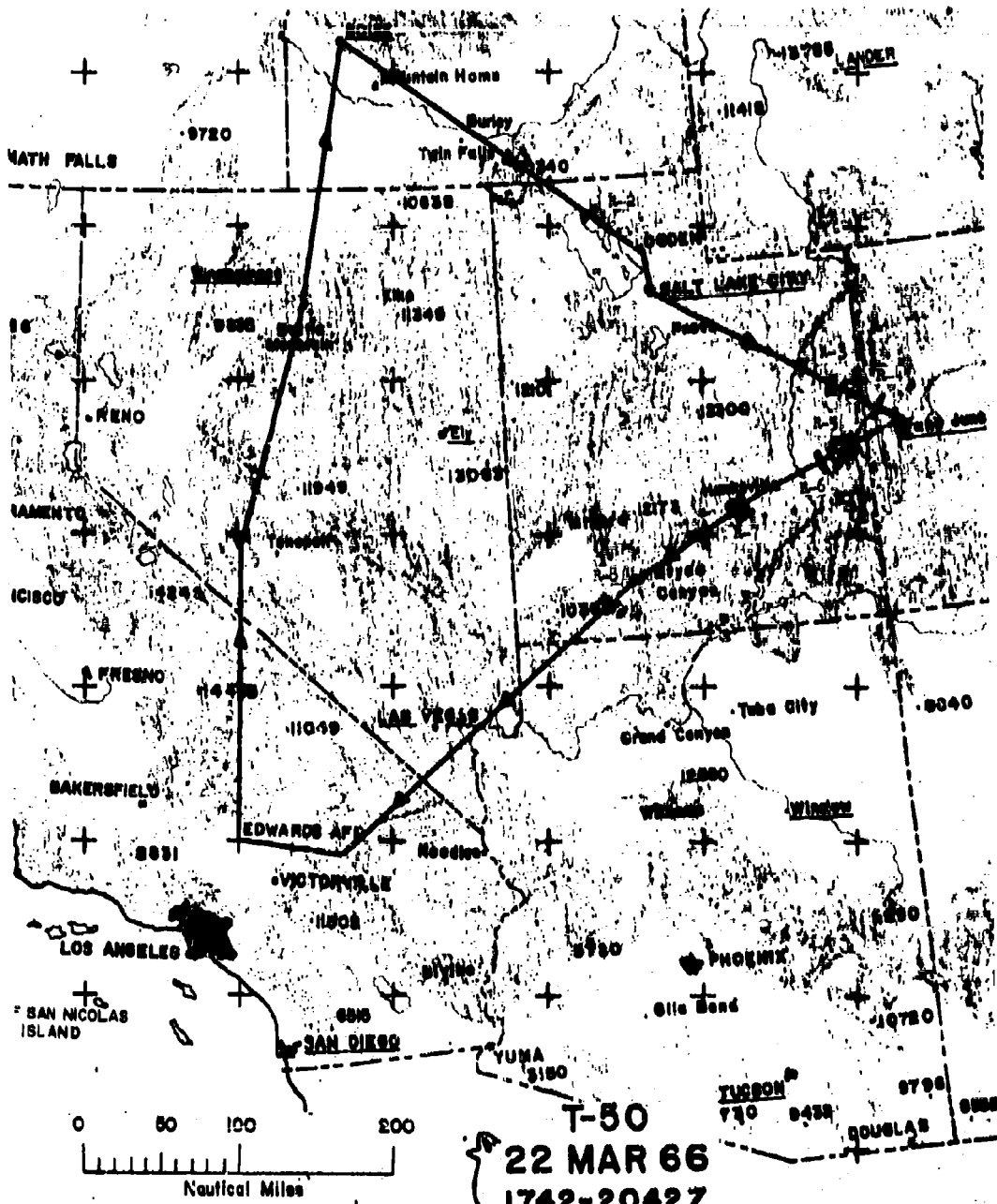
#### Meteorological Summary.

A trough aloft was located from Montana southward across Colorado to New Mexico. There was a northwesterly jet stream behind the trough from Idaho across Utah to New Mexico. Maximum speed in the jet was 115 knots at 35,000 feet over Utah. There was a considerable temperature change along the jet stream at heights up to 100 mb in the Utah area.

#### Pilot Report.

Light intermittent turbulence was experienced along the leg from Ogden to Grand Junction and also while crossing southern Utah between Grand Junction and Las Vegas. However, the altitude of the turbulence was not specified.

## Appendix IX



## Appendix IX

Test 51  
25 March 1965  
Edwards AFB, Calif.

### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, pressure was low from Kansas southwestward across west Texas and New Mexico down into Mexico. High pressure prevailed off the Pacific Coast and over the Northern Rockies. There was a closed low aloft up to 200 mb over Southern California and Arizona. The jet stream was displaced far to the south over Mexico and extended up northeastward across New Mexico and west Texas with maximum winds about 75 knots at 42,000 feet. Warm air advection was taking place at all altitudes up to at least 50 mb in the Arizona and New Mexico area.

#### Pilot Report.

The pilot reported intermittent light turbulence between 53,000 and 55,000 feet along the route between El Paso and Albuquerque; he reported a little light turbulence at 63,000 feet in the vicinity of Winslow. The weather was mostly clear with at most only scattered cumulus in the turbulence areas. There was a cirrus overcast in western Arizona and southeastern California, but no turbulence was noted in the altitude range 51,000 to 63,000 feet in this area.

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## Appendix IX

Test 52  
28 March 1966  
Edwards AFB, Calif.

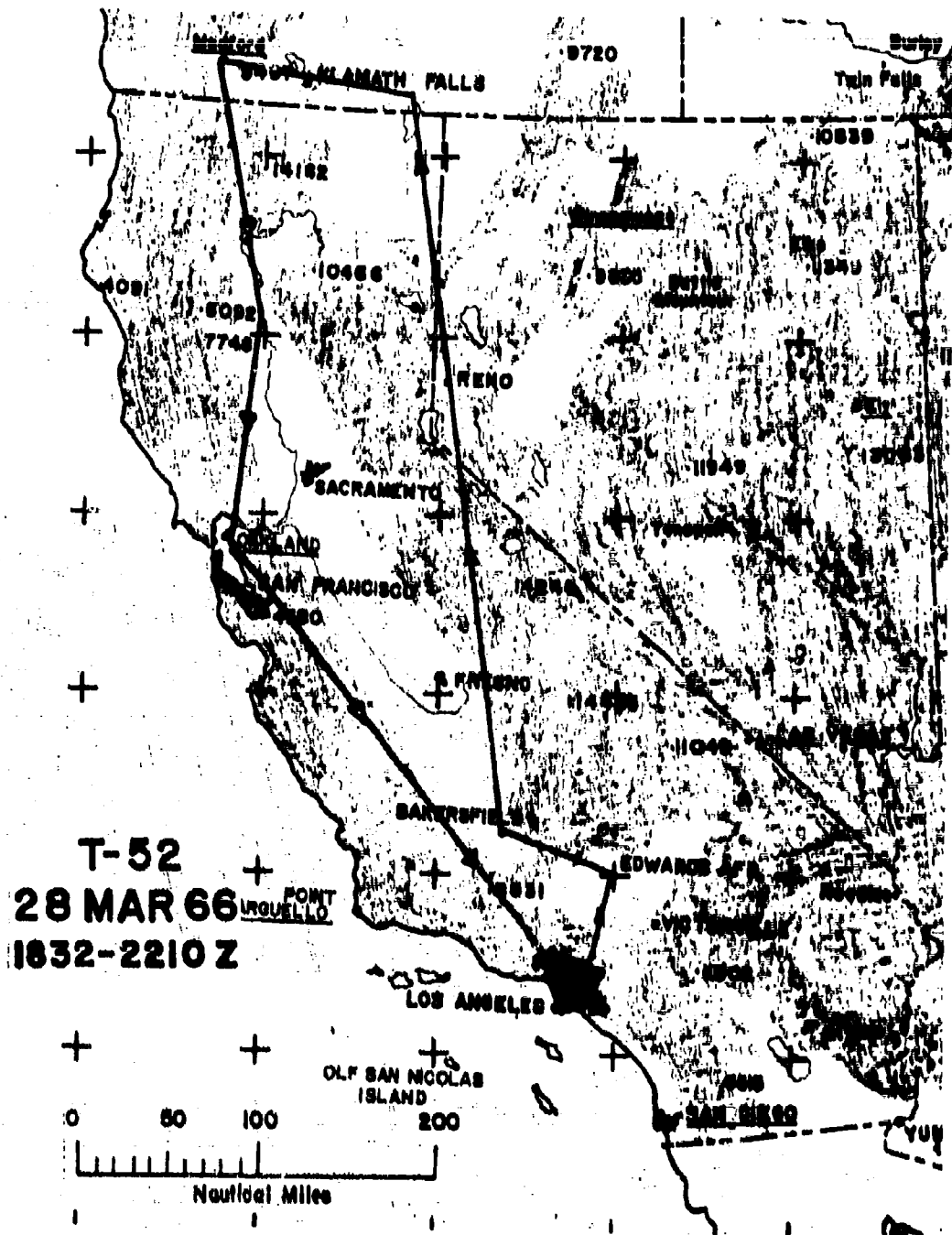
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, pressure was high off the California coast and over the northern Rocky Mountains. A weak thermal low extended northward from Mexico into southern Nevada. The flow aloft was relatively weak. A slight ridge was located along the California coast was accompanied by northerly winds aloft over the state. No important temperature gradients existed aloft over the area of the flight.

#### Pilot Report.

No turbulence was encountered during this flight. It appears that most of the flight was conducted at 51,000 to 53,000 feet. It was clear over the route except for stratus along the coast.





## Appendix IX

Test 53  
31 March 1966  
Edwards AFB, Calif.

### FLIGHT DESCRIPTION

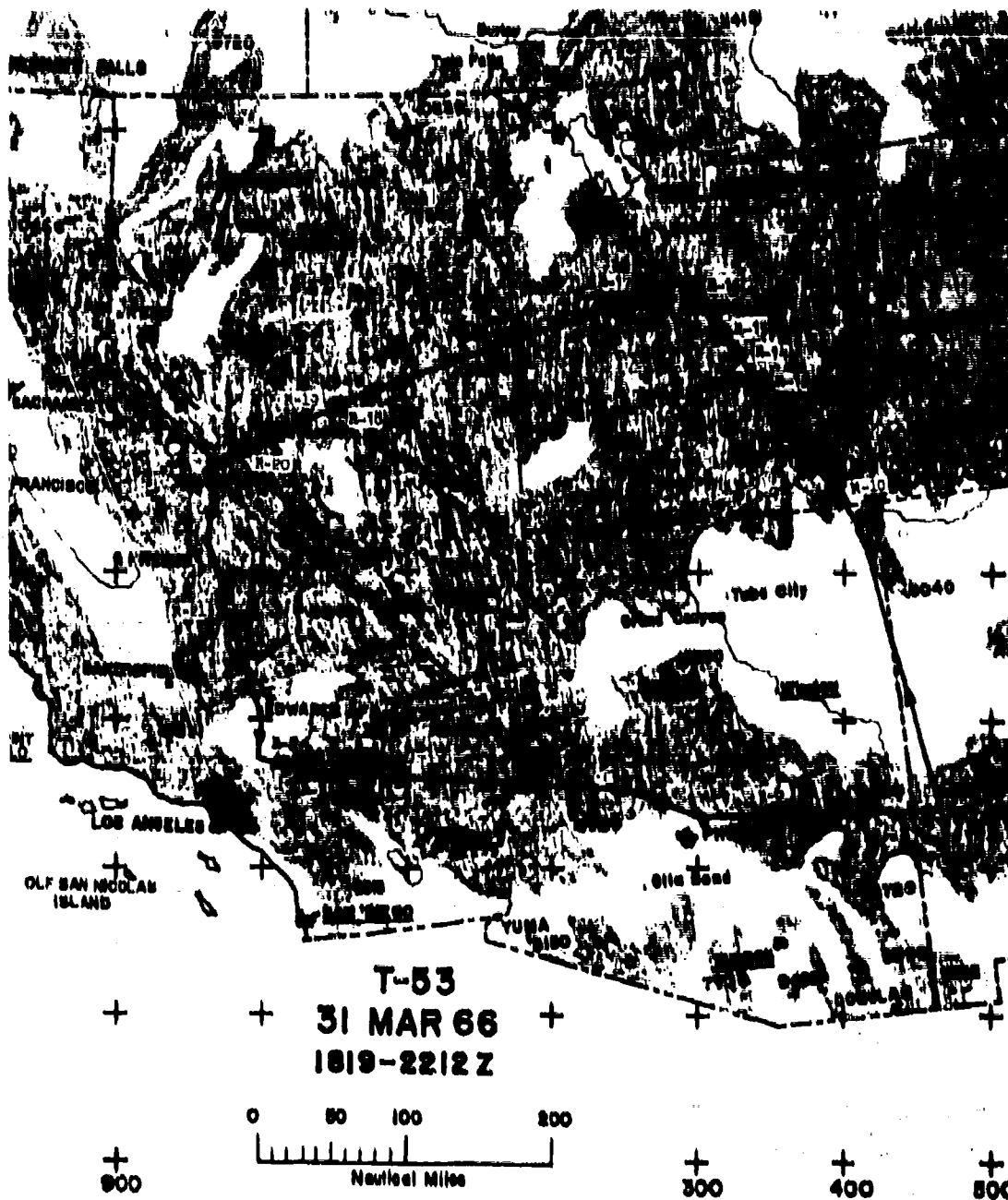
#### Meteorological Summary.

High pressure at the surface was centered over the northern Rocky Mountain States. A ridge aloft over California extended northward into Canada. Flow aloft was mostly northerly over the flight area, with north to northeasterly flow up to 40,000 to 45,000 feet and northwesterly above. Maximum speeds were around 75 knots at 42,000 feet.

#### Pilot Report.

Patches of very light turbulence were found scattered along most of the route. The best was located at 55,000 feet near Tonopah and was light in intensity. The areas and altitudes of very light turbulence included about five minutes between 52,000 and 59,000 feet on climbout, between 62,000 and 64,000 feet east of Gila Bend, at 64,000 feet northeast of Tucson, at 52,500 feet near Hanksville, Utah, at 67,000 feet west of Milford, Utah, at 57,000 feet about 100 miles east of Tonopah, and at 52,000 feet over the Sierra Nevada east of Fresno. The weather was mostly clear throughout.

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## Appendix IX

Test 54  
1 April 1966  
Edwards AFB, Calif.

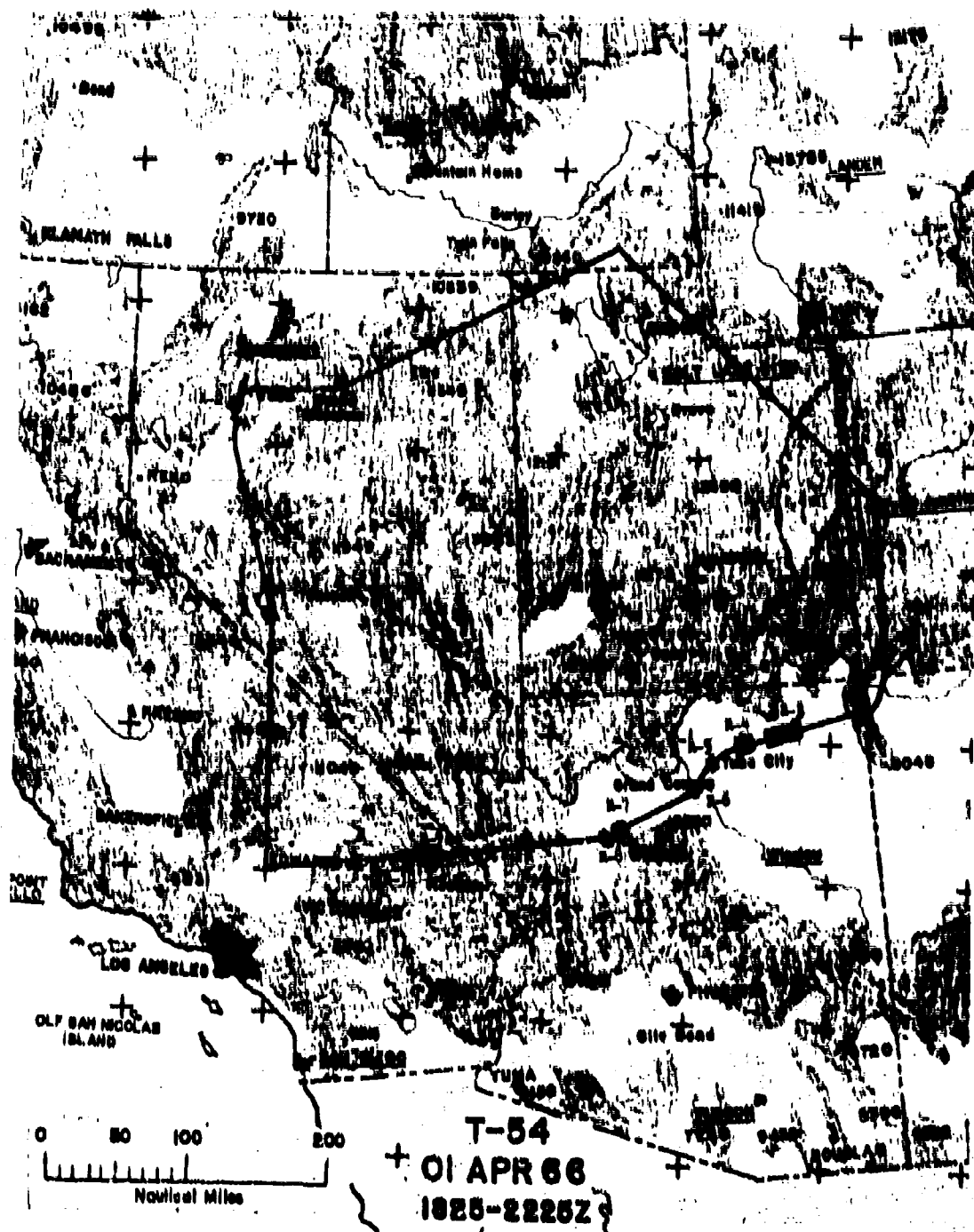
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, a cold front was moving southeastward through Washington and Oregon. There was a weakening high pressure cell over Idaho and Utah. A ridge aloft over California and Nevada was accompanied by mostly north and northwesterly winds over the area with maximum speeds near 80 knots over Idaho, Utah, and Colorado.

#### Pilot Report.

A patch of light turbulence was encountered at 57,000 feet near Battle Mountain, Nevada. Another was found at 61,000 feet near the Utah-Idaho border, and at 64,000 feet near Grand Junction. A patch of light to moderate turbulence was encountered at 54,000 feet near Prescott, Arizona. There was a cirrus overcast in northern Utah and southern Idaho, but otherwise mostly scattered clouds were observed.



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Test 55  
5 April 1966  
Edwards AFB, Calif.

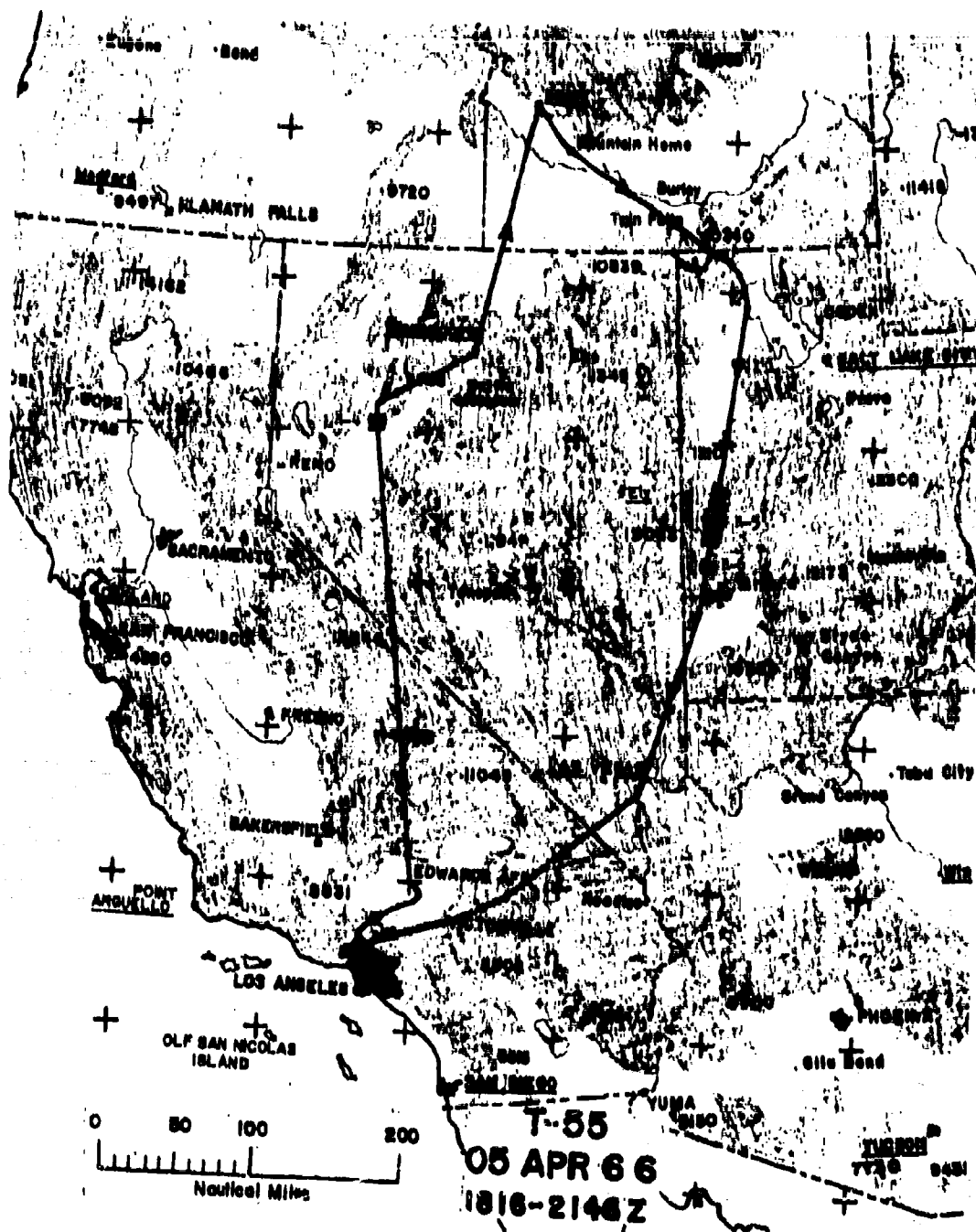
### FLIGHT DESCRIPTION

#### Meteorological Summary.

High pressure covered the entire mountain states with a ridge aloft over Nevada and northward into Washington. A northwesterly flow aloft over eastern Nevada, Utah and Arizona was accompanied by maximum winds of 60 to 70 knots at 40,000 to 45,000 feet.

#### Pilot Report.

Not much turbulence was found. Only one five-minute period of very light intensity at 66,000 feet was located just south of Provo, Utah. The weather was clear in the area.



## Appendix IX

Test 56  
6 April 1966  
Edwards AFB, Calif.

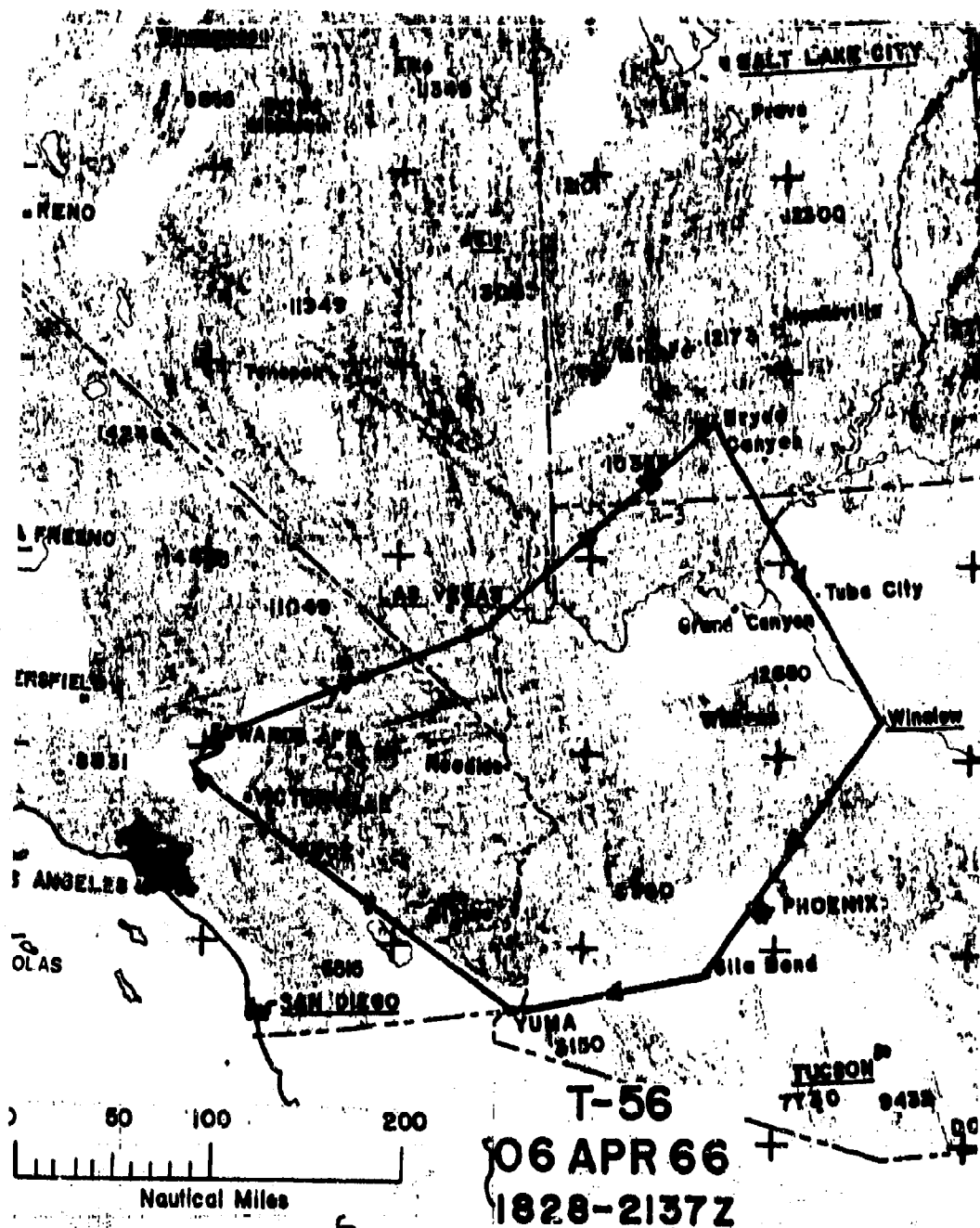
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A flat pressure gradient at the surface showed no definite centers of low or high pressure. There was a weak ridge aloft over the California-Nevada border area. Winds aloft were relatively light with maximum speeds about 40 knots.

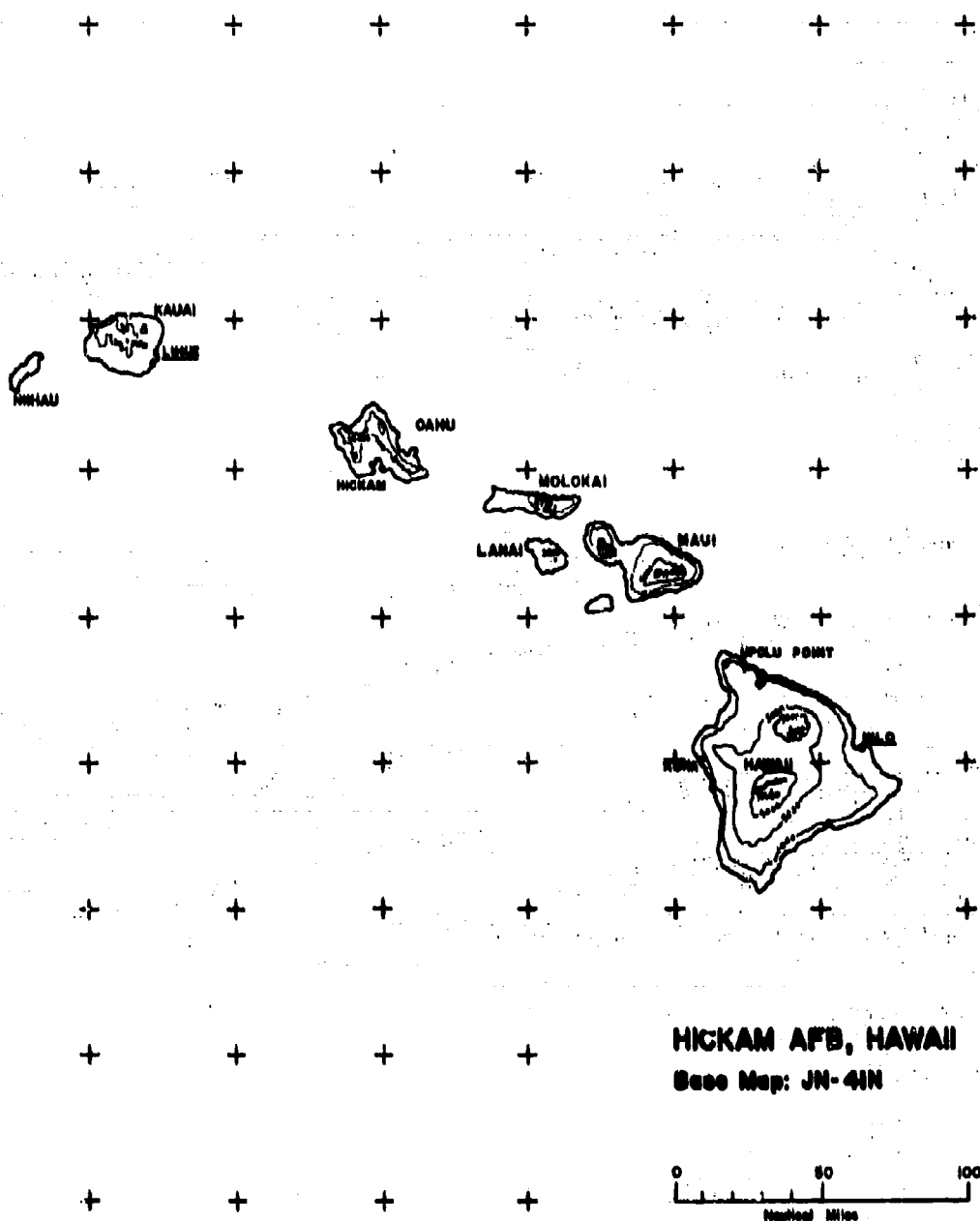
#### Pilot Report.

No turbulence was noted over the altitude range 52,000 to 65,000 feet. The weather over the route was mostly clear with only scattered clouds near Boulder, Nevada, and thin cirrus in the Phoenix area.





Appendix IX



Hickam AFB Operational Area Map

## Appendix IX

Test 58  
15 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

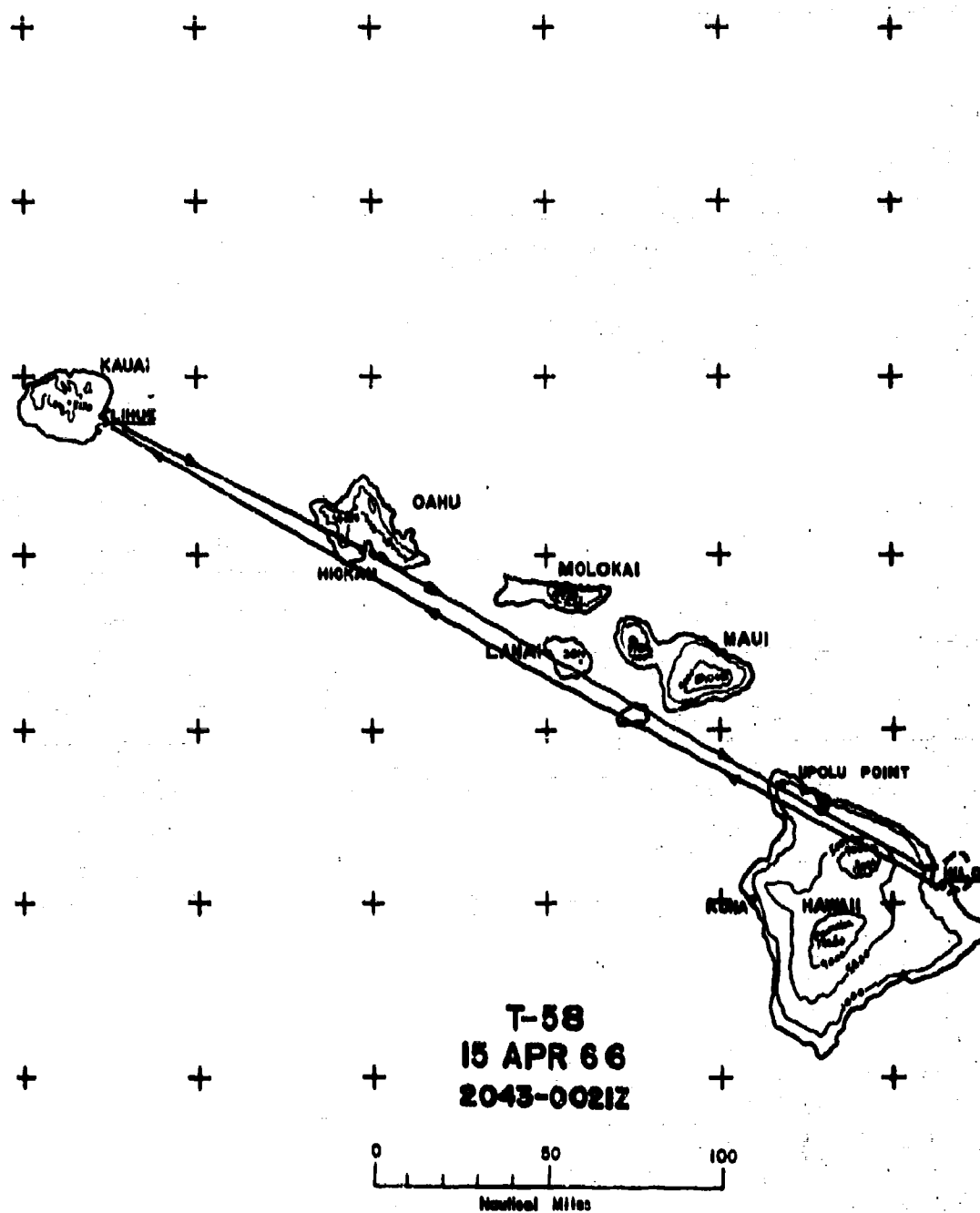
#### Meteorological Summary.

A weak high pressure ridge was situated at the surface and aloft over the area. The main jet stream was located well to the north of the islands; maximum winds over the islands were 80 knots at 40,000 feet. Slight warm air advection was occurring across the area up to 65,000 feet.

#### Pilot Report.

No significant turbulence was found other than just a few nibbles of very very light intensity between 57,000 and 63,000 feet. Otherwise none was found between 46,000 and 68,000 feet. A few clouds were observed over the water, but there was considerable strato-cumulus around the islands with tops at 8000 feet. The only high clouds were located well to the north of the islands.

Appendix IX



## Appendix IX

Test 59  
18 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

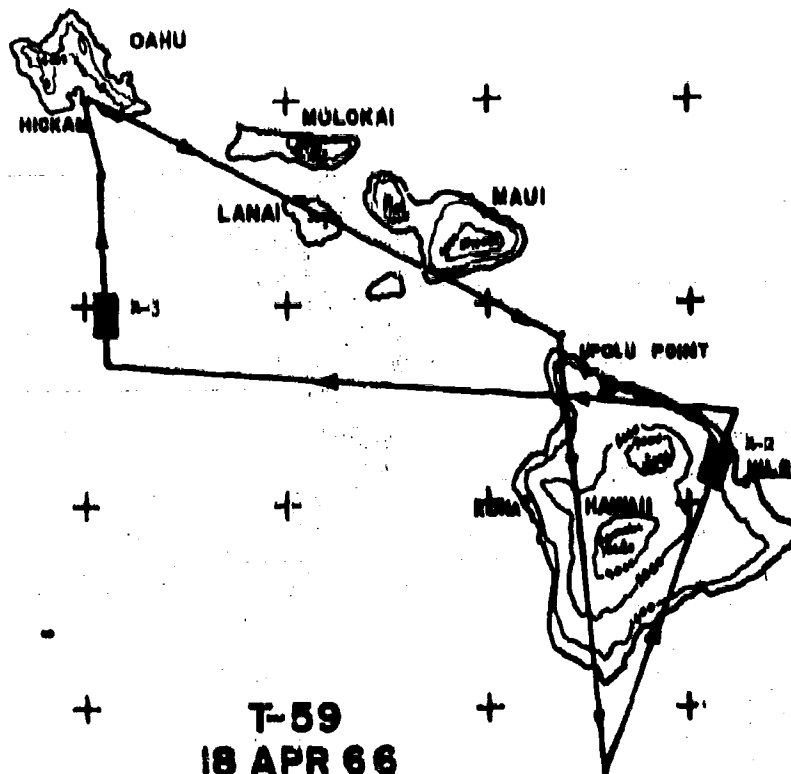
Although there was a weak pressure gradient at the surface, a sharp trough existed aloft over the area. A southwesterly jet stream over Hilo had maximum speeds of 170 knots at 45,000 feet. The northwesterly flow behind the trough line had much lighter winds, generally 50 to 60 knots at Lihue. The flight plan was designed to investigate the possibilities of turbulence in the wind shift and trough zone as well as within the jet stream area; and to investigate the interval 60,000 to 70,000 feet where the wind speeds decreased markedly and the direction reversed to easterly.

#### Pilot Report.

Very little turbulence was found between 50,000 and 70,000 feet. One patch of light chop was found at 52,000 feet about 40 miles northwest of Hilo on about the north coast of the island. It lasted only a couple of minutes. Another patch of light turbulence was found at 60,000 feet 20 miles due south of Honolulu. Photographs show cumulus over the islands but only scattered alto-cumulus over the open ocean.

Appendix IX

KAUAI  
LAIKE



T-59  
18 APR 66  
2100-0109Z

0 50 100  
Nautical Miles

## Appendix IX

Test 60  
20 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

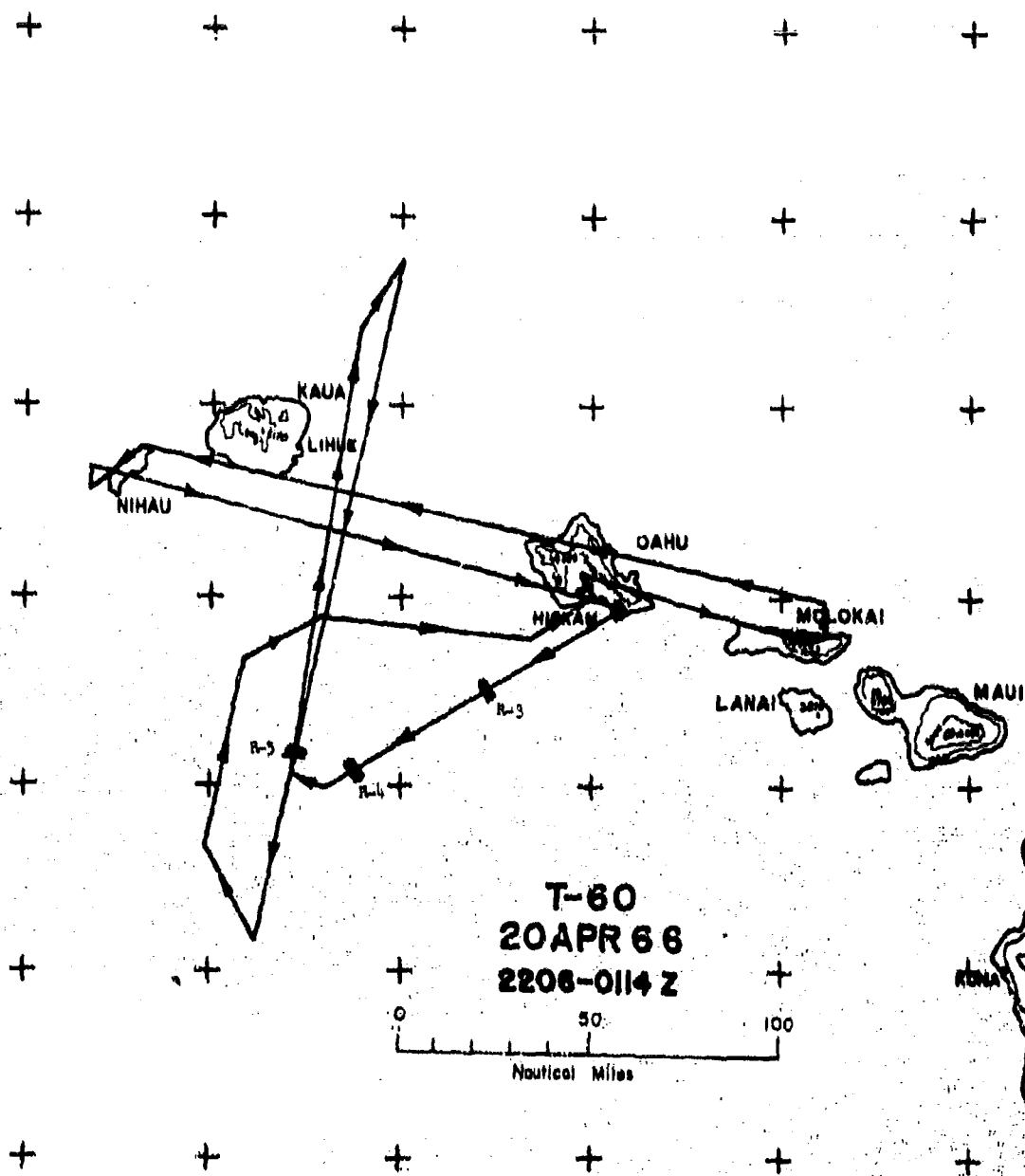
#### Meteorological Summary.

Low pressure at the surface and aloft was centered to the northeast of the islands and a trough line aloft extending southwestward across islands. Maximum winds were 100 knots at 42,000 feet east of the trough in the Hilo area and 70 knots at 48,000 feet west of the trough over Kauai.

#### Pilot Report.

Some light turbulence was encountered at 61,000 to 63,000 feet between Oahu and Molakai, but the main area of turbulence was just to the south of Kauai and Oahu where about an hour of continuous light turbulence occurred at 61,500 feet; there was none at 65,000 feet. The temperature increased three to four degrees upon entering the turbulence area. Fewer clouds were observed to the north of the islands than to the south. Cloud photographs show mostly broken strato-cumulus over the islands and scattered alto-cumulus and cirro-cumulus over the water. Some of the cirro-cumulus appears to be arch-shaped or lenticular and streaky, suggesting probable wave motion.

Appendix IX



## Appendix IX

Test 61  
21 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

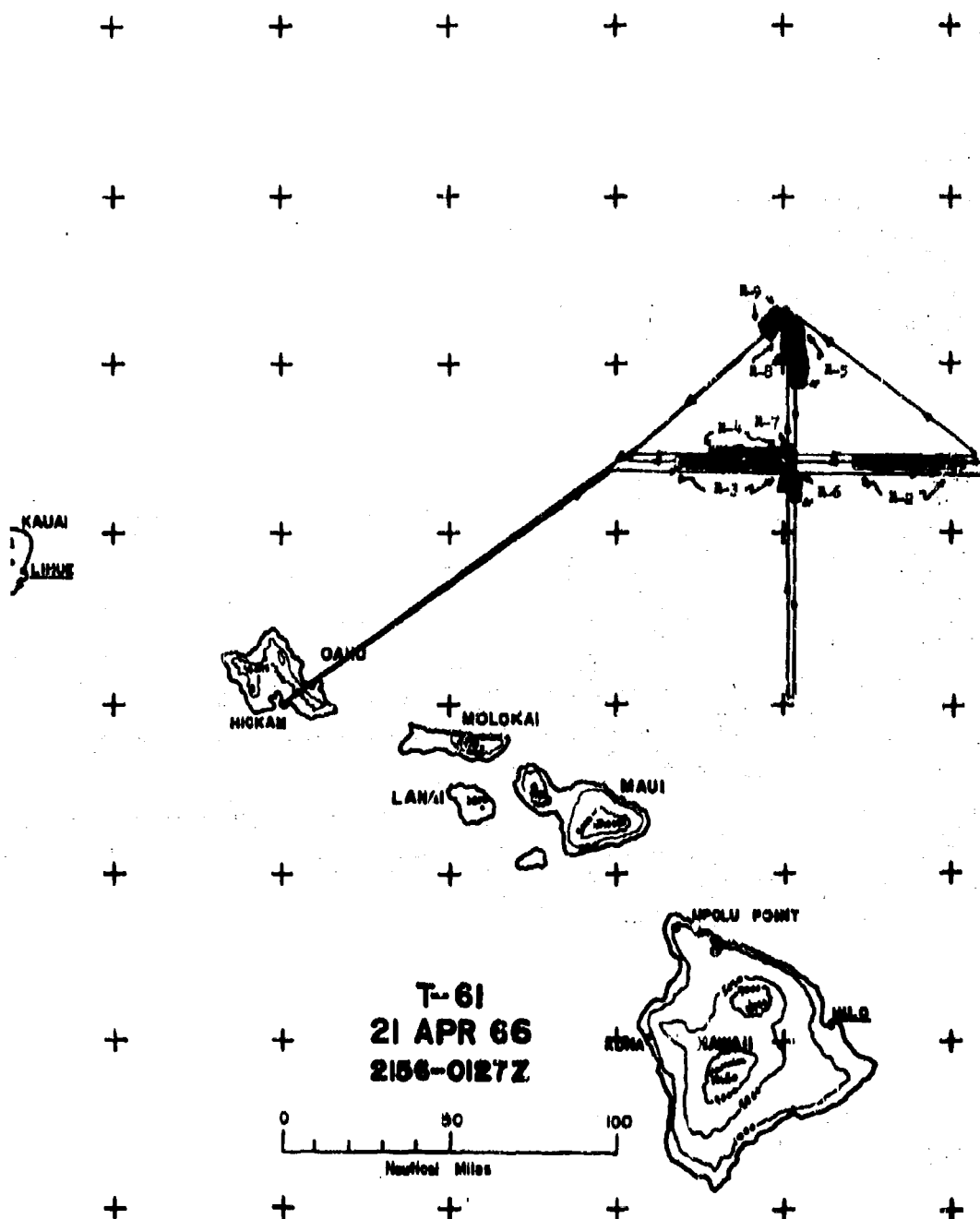
A stationary low pressure area at the surface and aloft persisted to the northeast of the islands. A trough line aloft extended southwestward toward the islands. Maximum winds over Hilo were 70 knots at 40,000 feet. The forecast called for probable turbulence in the trough area to the northeast of the islands.

#### Pilot Report.

Light turbulence was found in the forecast area about 250 miles due north of Hilo. It occurred in bands in the altitude range 54,000 to 60,000 feet. It was smooth both below and above. The pilot thought the best turbulence was around 55,000 feet and flew the prescribed pattern at this altitude. The turbulence was light (not over 0.1g) and intermittent throughout the pattern. At the end of the run, the pilot again checked the altitude range and the turbulence was still confined between 54,000 to 60,000 feet. There were scattered clouds below mostly cumulus in the turbulence area. Some had anvil tops which were bent over and streaming downwind.



# Appendix IX



## Appendix IX

Test 62  
22 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

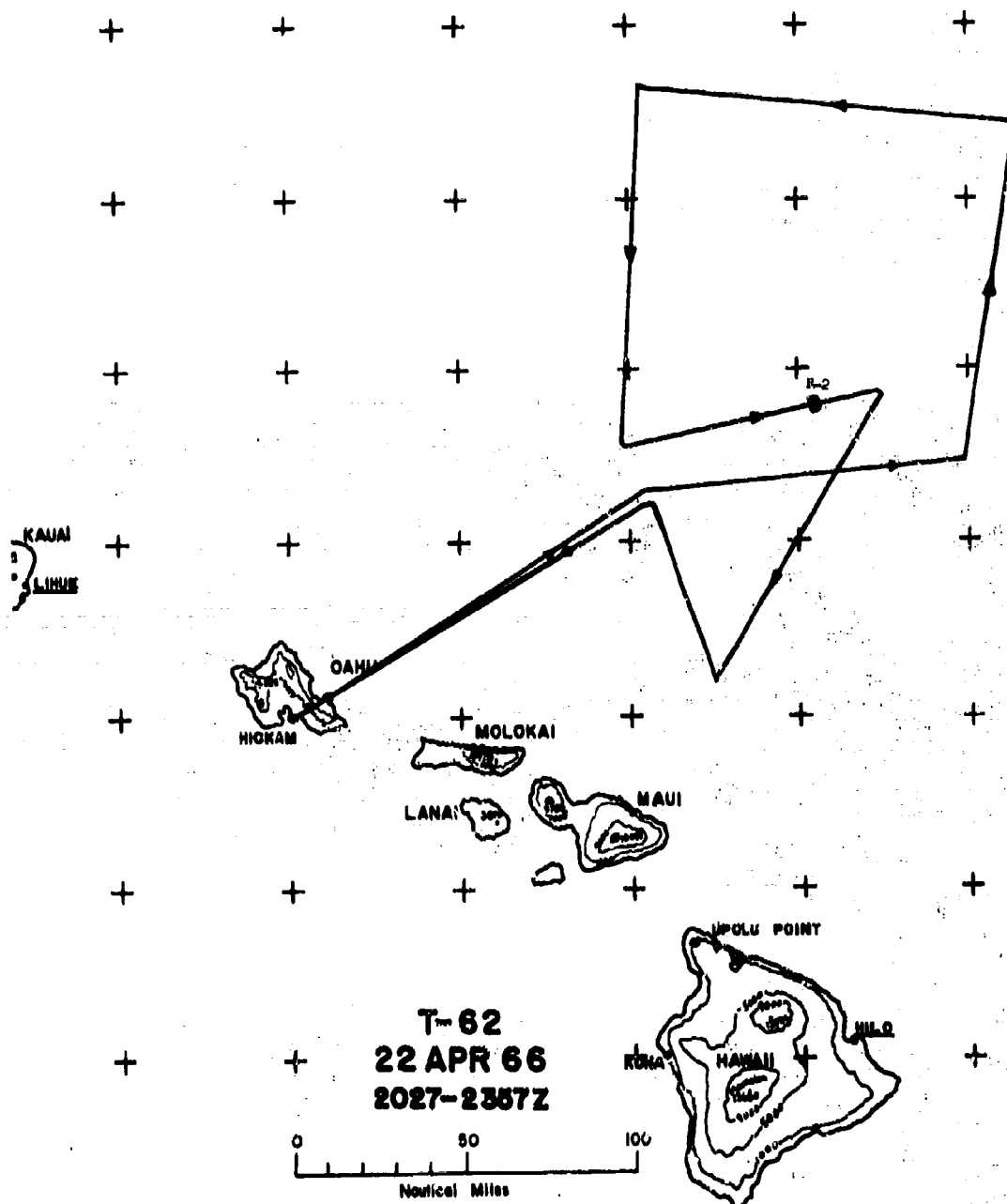
#### Metecrological Summary.

A stationary low pressure area at the surface was centered to the northeast of the islands at coordinates (350 nmi N, 450 nmi E). A trough of low pressure at 700 mb (10,000 feet) was centered over the islands, but at greater heights the trough tilted eastward and coincided with the surface low 450 nmi east of Hickam. The main jet aloft was located well to the northeast of the islands in the area of the surface low and trough aloft. Maximum winds over the islands were only about 50 knots at 45,000 feet.

#### Pilot Report.

No turbulence of consequence was found. One short sudden bump (0.1g) occurred at 55,900 feet; otherwise nothing was found within the altitude range 48,000 to 66,500 feet. Clouds below were mostly scattered to broken cumulus with a few streaky wavy cirrus wisps above the cumulus tops.

Appendix IX



## Appendix IX

Test 63  
25 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

A high pressure area at the surface accompanied by a weak cold frontal system on its southern boundary was located about 300 miles to the northwest of the islands. There was a generally weak flow pattern aloft with a slight ridge over the northwest portion of the islands and a trough to the south of Hawaii. Maximum winds were 55 knots near 50,000 feet. No turbulence was predicted.

#### Pilot Report.

It was as smooth as silk in the area to the north of the islands. Light turbulence was encountered in the area just northeast of Hilo as the plane reached an altitude of 62,000 feet, so the pilot decided to fly a pattern. He noted that the turbulence was quite a bit greater, but still light, on the southwest-northeast leg than on the northwest-southeast leg, in the sense that the turbulence was more intermittent on the latter leg. The latter leg was flown about one and one-half hours after the first. There seemed to be no altitude thickness to the turbulence. Light intermittent turbulence occurred throughout the flight to the immediate west of the big island, and a second pattern was made in an area of continuous light turbulence at 62,000 feet about 90 miles due south of Oahu. Cloud photographs show strato-cumulus below the peaks on Hawaii with only scattered alto-cumulus and cirrus over the water. In the area to the west of Hawaii and south of Oahu, there were only scattered alto-cumulus oriented in parallel bands.

LM-3 inoperative. Plotted from oscillograph and pilot position times. Light intermittent patches of "rough air" are shown in the outlined area for runs 2-25, 33, 34, & 35. The legs for the long runs of 33-35 are indicated by arrows.

**T-63**  
**25 APR 66**  
**2103-0129Z**

0 50 100  
 Nautical Miles

LN-3 inoperative. Plotted from oscillograph and pilot position times. Light intermittent patterns of "rough air" are shown in the outlined area for runs 2-25, 33, 34, & 35. The logs for the long runs of 33-35 are indicated by arrows.

**T-63**  
**25 APR 66**  
**2103-0129Z**

## Appendix IX

Test 64  
26 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

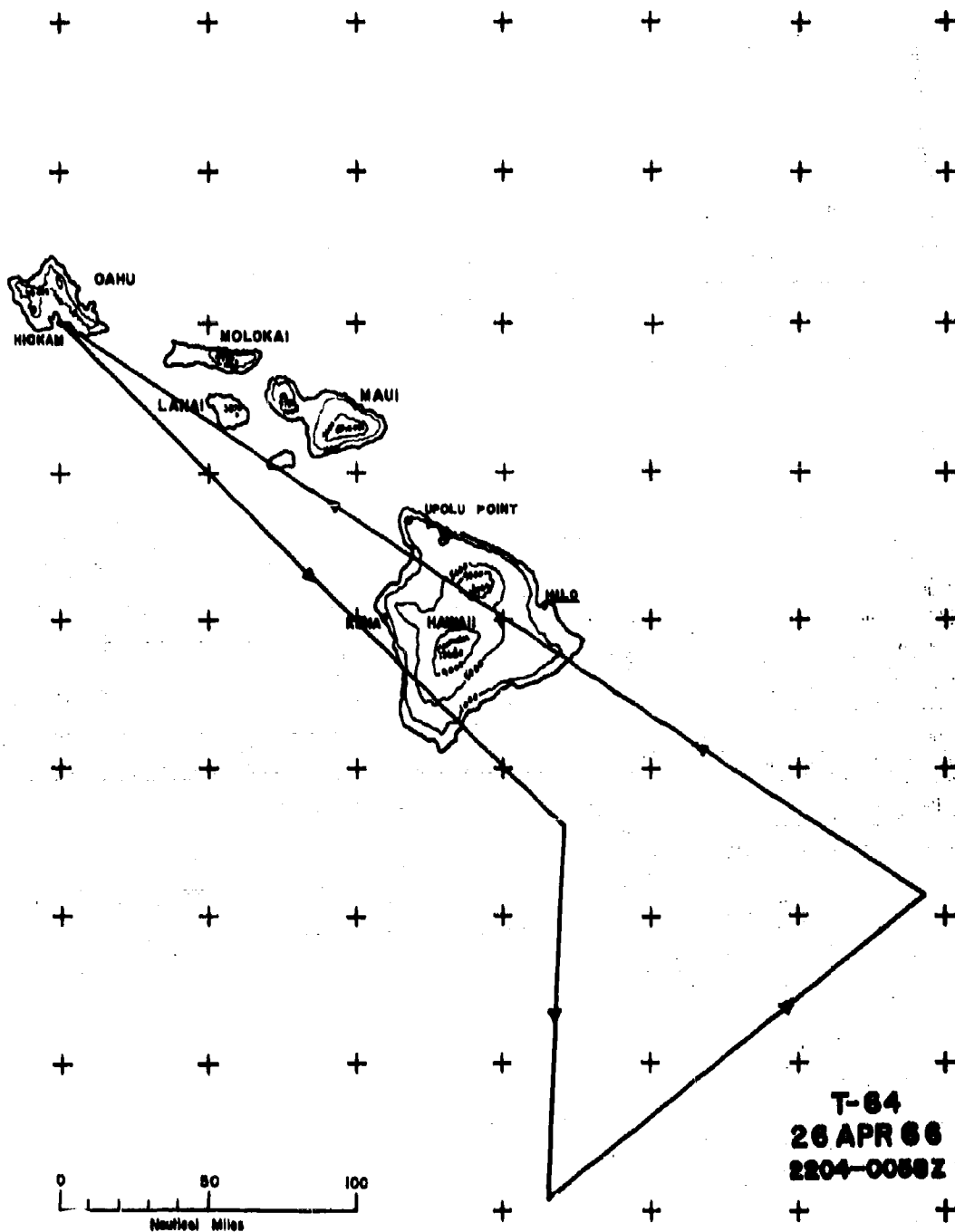
#### Meteorological Summary.

A surface high pressure area was centered 900 nmi to the north of the islands. A generally weak flow pattern prevailed up to 30,000 feet above which a slight trough became established to the west and a ridge to the east of the islands; maximum winds were about 50 knots at 42,000 feet. Not much turbulence was predicted.

#### Pilot Report.

There was no turbulence in the altitude range 50,000 to 67,000 feet. Only a couple of ripples of turbulence were encountered at 64,000 and 67,000 feet about 200 miles south and east of Hilo. Photographs show scattered to broken cumulus in the area southeast of Hilo.

Appendix IX



## Appendix IX

Test 65  
27 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

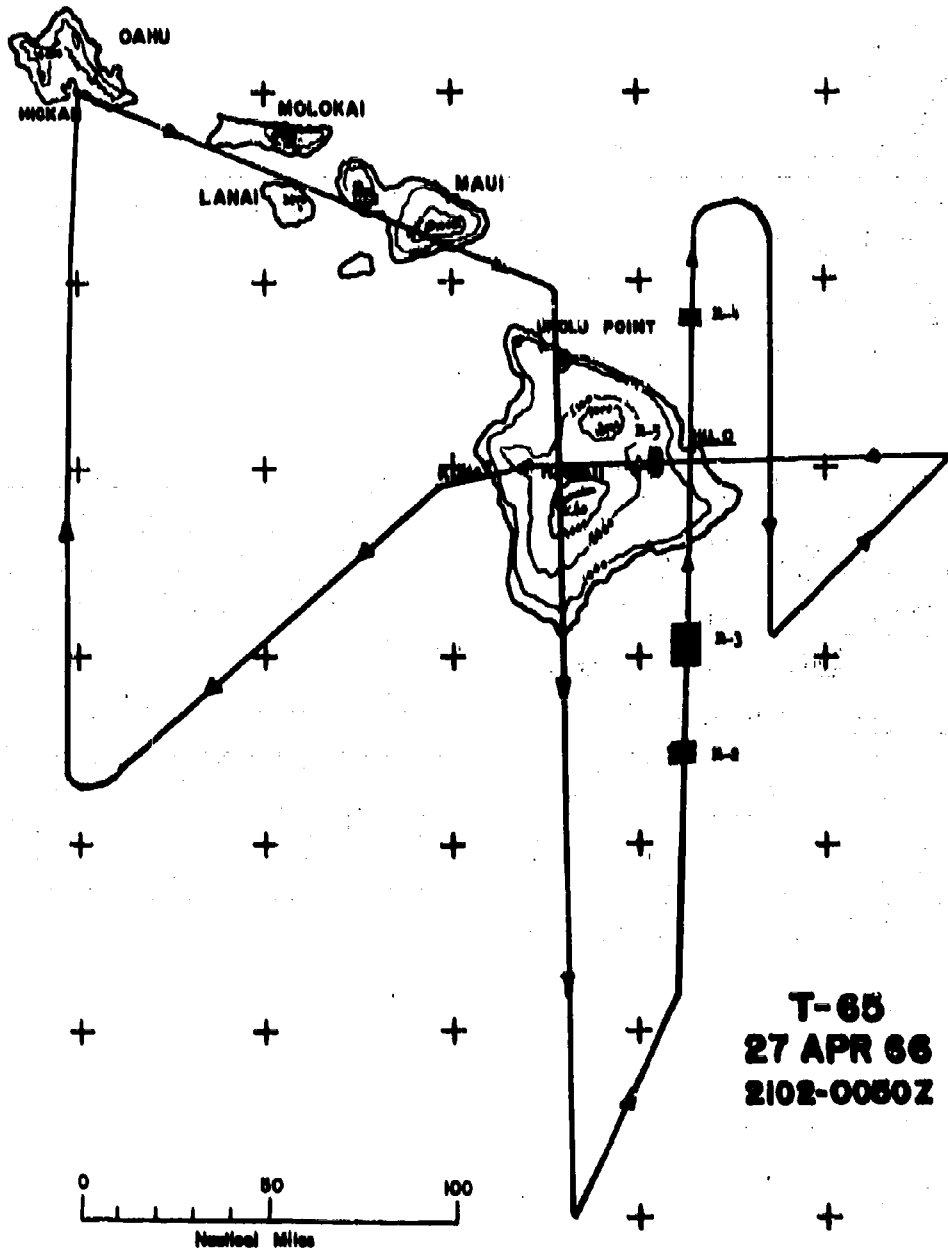
A flat east-west pressure gradient existed at the surface with a slight trough aloft at 500 mb and upward; maximum winds were 60 knots at 40,000 feet. The forecast called for possible turbulence in Hawaii area between 50,000 and 60,000 feet based on large wind direction shear and decreasing speeds within that altitude interval.

#### Pilot Report

No turbulence was found while flying from Oahu to Hilo and to a point 250 miles south of Hilo. Upon returning toward Hilo, a few nibbles of light turbulence were encountered at 55,000 feet beginning just south of Hawaii and continuing intermittently across to the north side of the island. More light and intermittent turbulence was found in the same general area and also slightly to the east of Hawaii during the two subsequent passes through the area. Only a few light nibbles were found at 61,000 feet on the return flight to the west of Hawaii and south of Oahu. It was mostly clear over the entire route except for considerable cirrus far south of Hawaii and the usual strato-cumulus around the edge of Hawaii.



Appendix IX



## Appendix IX

Test 66  
28 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

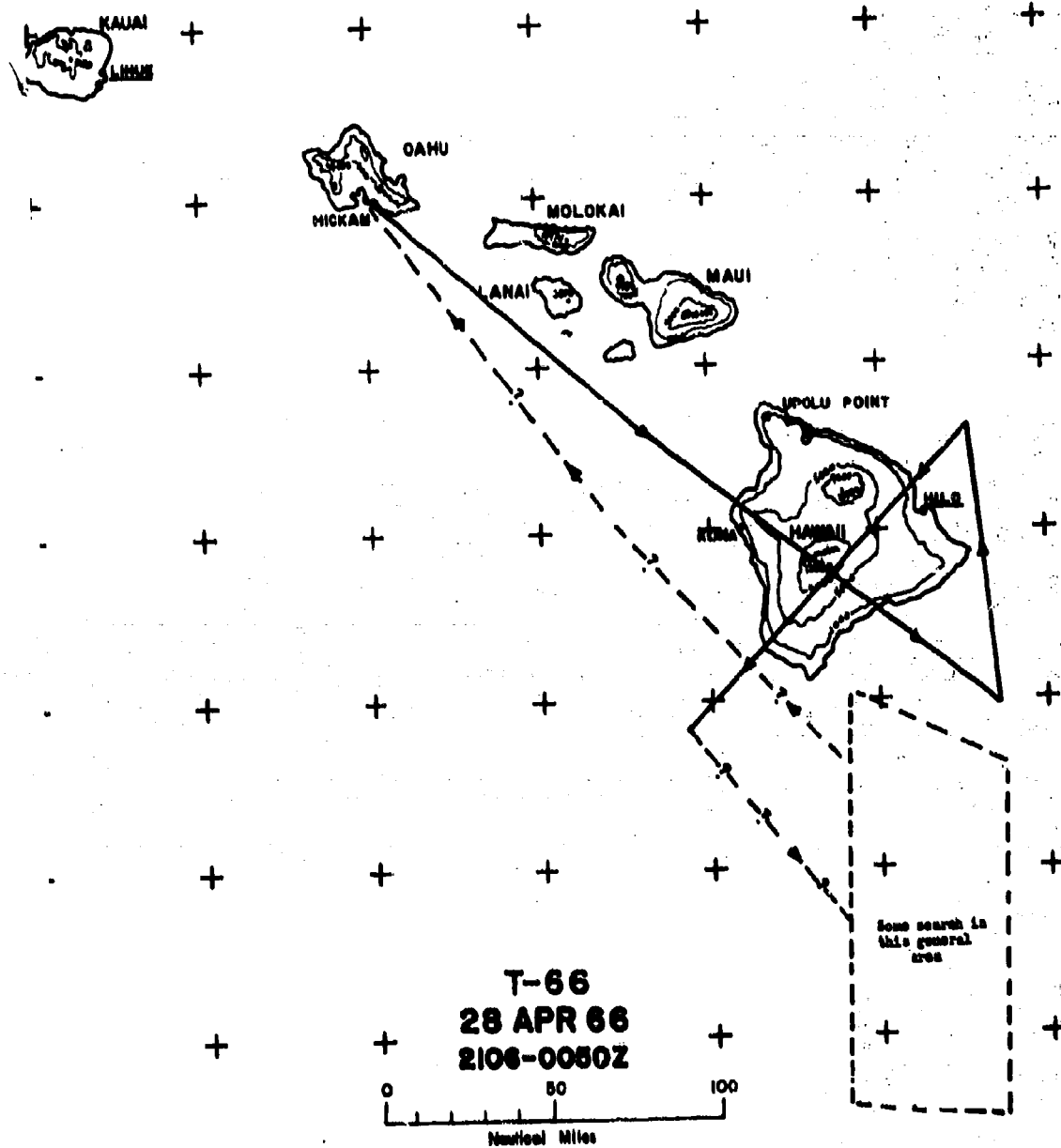
#### Meteorological Summary.

An east to west pressure gradient continued at the surface with a trough aloft from 500 mb and upward; a jet stream flowed over Hawaii and in the area to the south of the island. Maximum winds were 125 knots at 40,000 feet. Light turbulence was predicted in the area of the jet stream over Hawaii and to the south at altitudes of 43,000 to 53,000 feet.

#### Pilot Report.

No turbulence was encountered over Hawaii on the northwest to southeast leg, but a few ripples of light turbulence were found over the northeastern part of the island. Light intermittent turbulence was encountered at several altitudes between 51,000 and 59,000 feet in the area up to 250 miles south of Hawaii, but none lasted more than 30 seconds at a time. No turbulence was found above 60,000 feet. Winds at 51,000 feet were about 60 knots, but decreased rapidly above. Photographs show scattered cumulus over the water and the usual broken strato-cumulus around the edges of Hawaii.

## Appendix IX



## Appendix IX

Test 67  
29 April 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

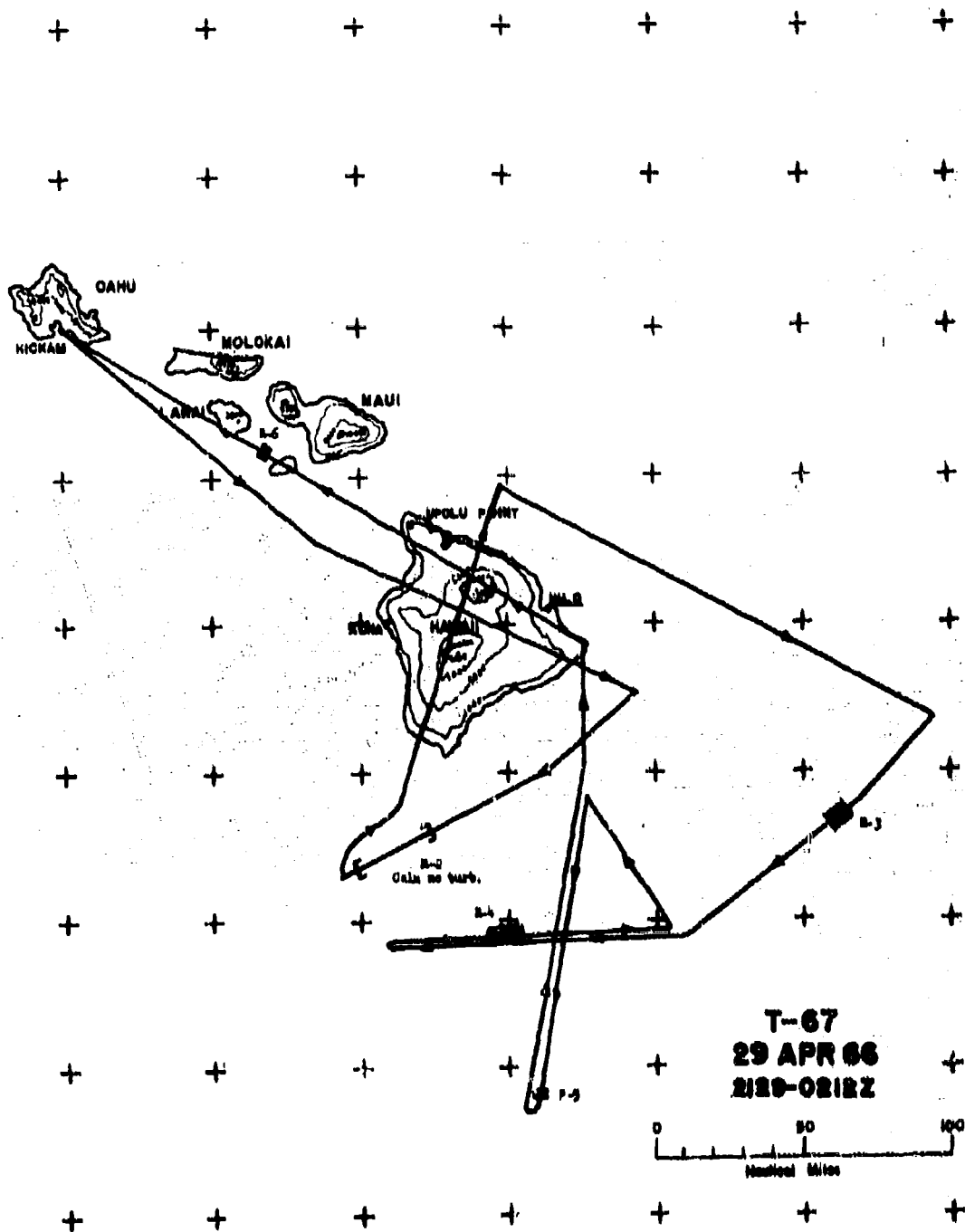
#### Meteorological Summary.

A flat east to west pressure gradient prevailed at the surface; a trough aloft occurred from 500 mb and upward. A fairly strong jet stream was associated with the trough; maximum winds were about 130 knots at 40,000 feet over Hawaii. The best area for turbulence was forecast to be the area around and to the south of the island of Hawaii.

#### Pilot Report.

Turbulence was found at many altitudes from 39,000 to 60,000 feet, but all of it was light, spotty, and intermittent. The turbulence at 39,000 feet was encountered on climbout in the area south of Molakai. A few ripples were encountered at 60,000 feet over Hilo and at 56,000 feet near Upolu Point on the northwest tip of Hawaii. Other areas of light turbulence were found at 51,500 feet east of Hawaii and also about 110 miles to the south. Clouds throughout the area were scattered cumulus and alto-cumulus.

# Appendix IX



## Appendix IX

Test 68  
2 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

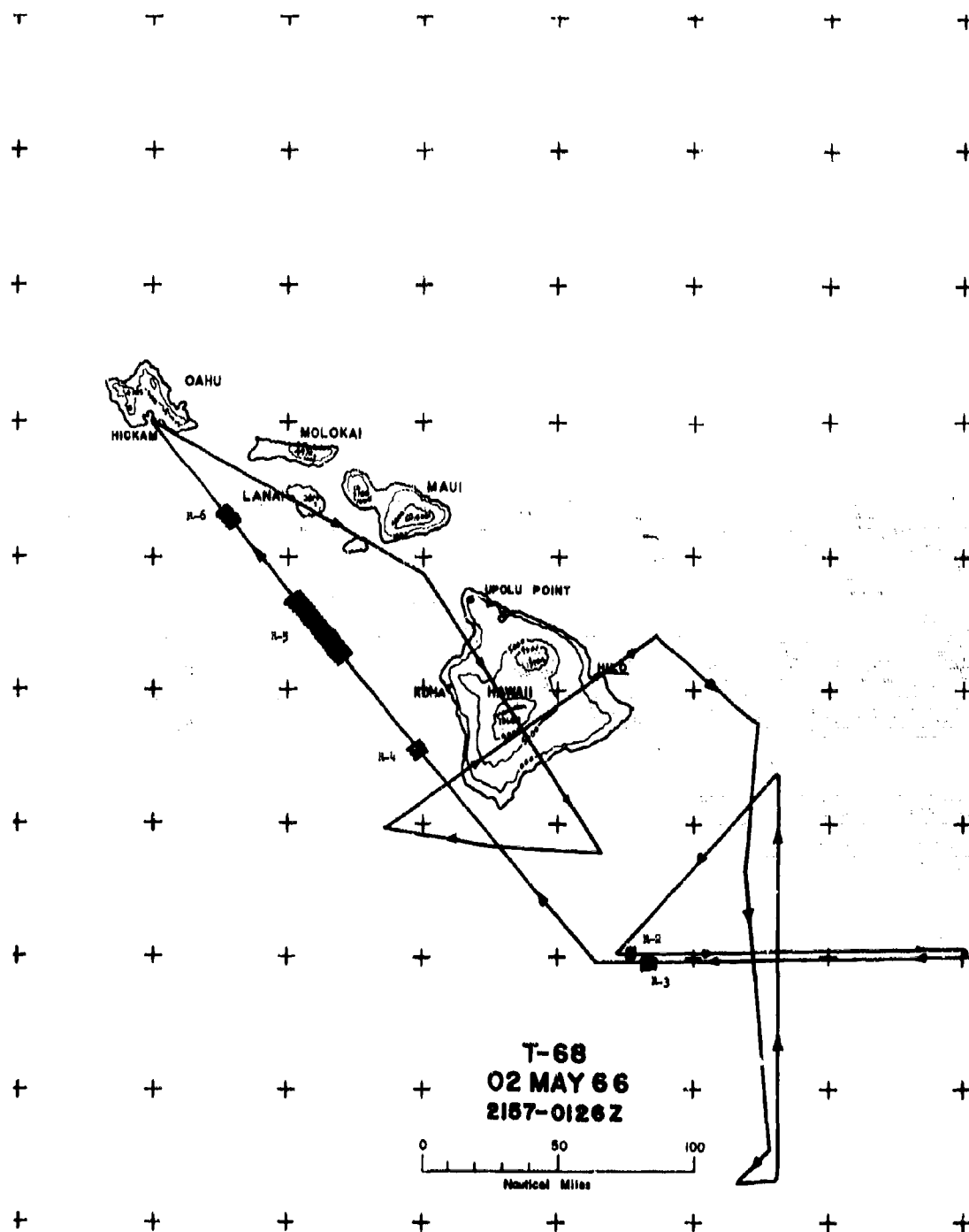
#### Meteorological Summary.

At the surface, a subtropical high pressure area was centered to the north of the islands; there was a closed low aloft at 500 mb with a trough at higher levels over the islands. A jet stream was located to the south. Maximum winds over the islands were 55 knots at 42,000 feet. The best area for turbulence was forecast to be in the jet stream area well to the south of the Islands.

#### Pilot Report.

Some ripples of turbulence were encountered at 60,000 feet on the flight to the Hilo area. None were encountered climbing to 66,000 feet in the area to the east of Hawaii. Descending to between 57,000 and 58,000 feet, light and fairly consistent turbulence was found in the area southeast of Hawaii. A couple of bumps of moderate intensity (0.2g) but of only 5-seconds' duration were found at a point about 200 miles south of Hawaii. The pilot was unable to find this turbulence again when he turned around and made another pass through the area. In general, the turbulence had a vertical spread of about 2000 feet. None was found below 57,000 feet and none above 60,000 feet. Most of the turbulence in the forecast area was found to the south of the island of Hawaii. The pilot noticed little change in temperature except when going in a north-south direction. Cloud photographs show the usual strato-cumulus around the edges of Hawaii, scattered alto-cumulus aligned in parallel rows, scattered to broken cumulus; and streaky cirrus wisps in the turbulence area southeast of Hawaii.

Appendix IX



## Appendix IX

Test 69  
4 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

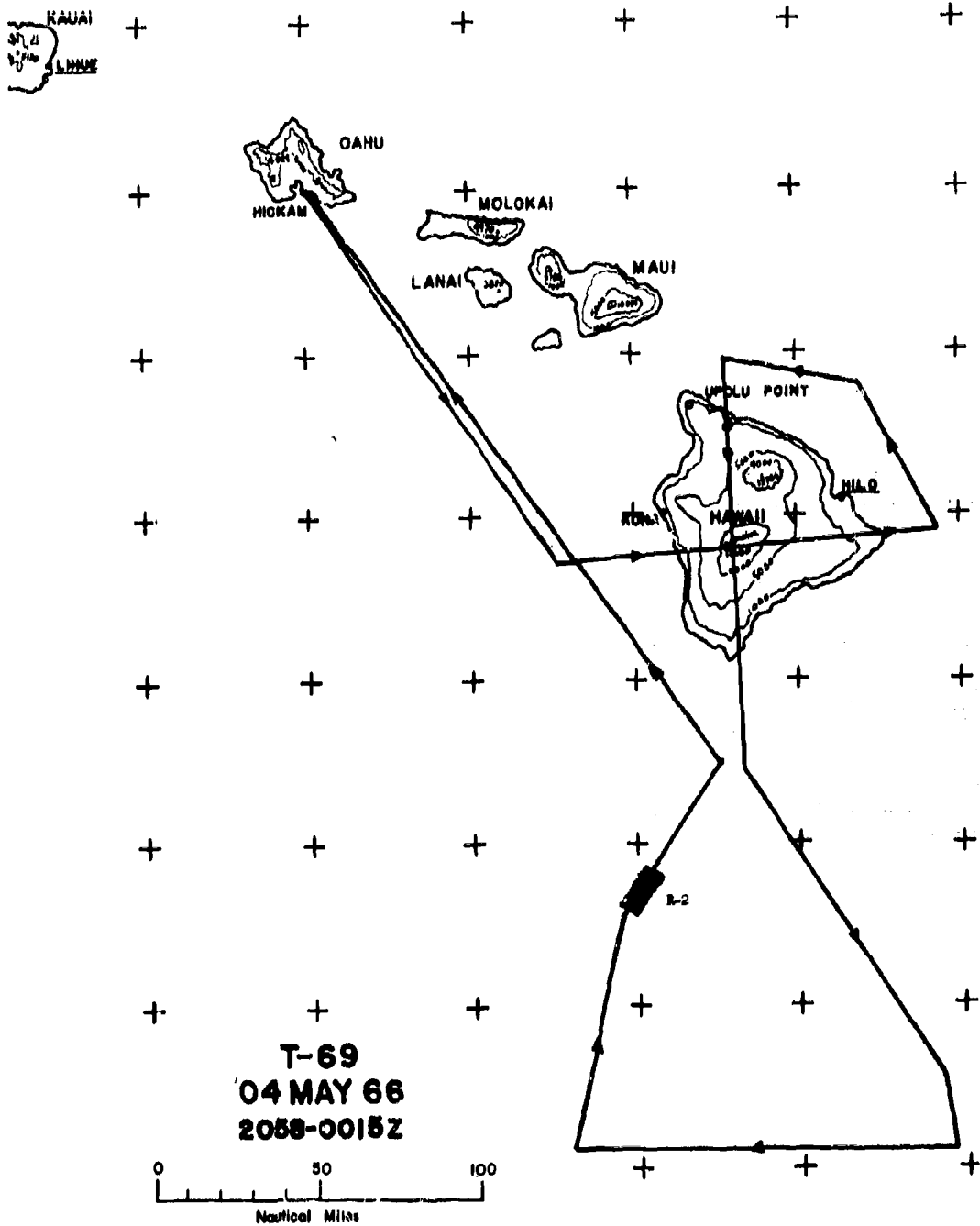
A weak east-west pressure gradient existed at the surface; a subtropical high pressure area was centered slightly to north. A shallow trough aloft occurred above 300 mb with a jet stream lying to the south of the islands. Maximum winds over the islands were 100 knots at 42,000 feet. Probable turbulence was forecast at 45,000 to 55,000 feet (below the inversion layer at 55,000 feet) from the island of Hawaii and to 120 miles to the south.

#### Pilot Report.

Few patches of light turbulence were encountered at 47,000 feet on climbout. There was one patch of light turbulence at 60,000 feet over the island of Hawaii. While flying a triangular pattern in the region south of the island at varying altitudes between 50,000 and 68,000 feet, one patch of light turbulence was encountered at 51,000 feet and another at 68,000 feet. Photographs show mostly scattered cumulus and alto-cumulus and some streaky cirrus which appear to have originated as blownoff anvil-cumulus tops.



Appendix IX



## Appendix IX

Test 70  
5 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

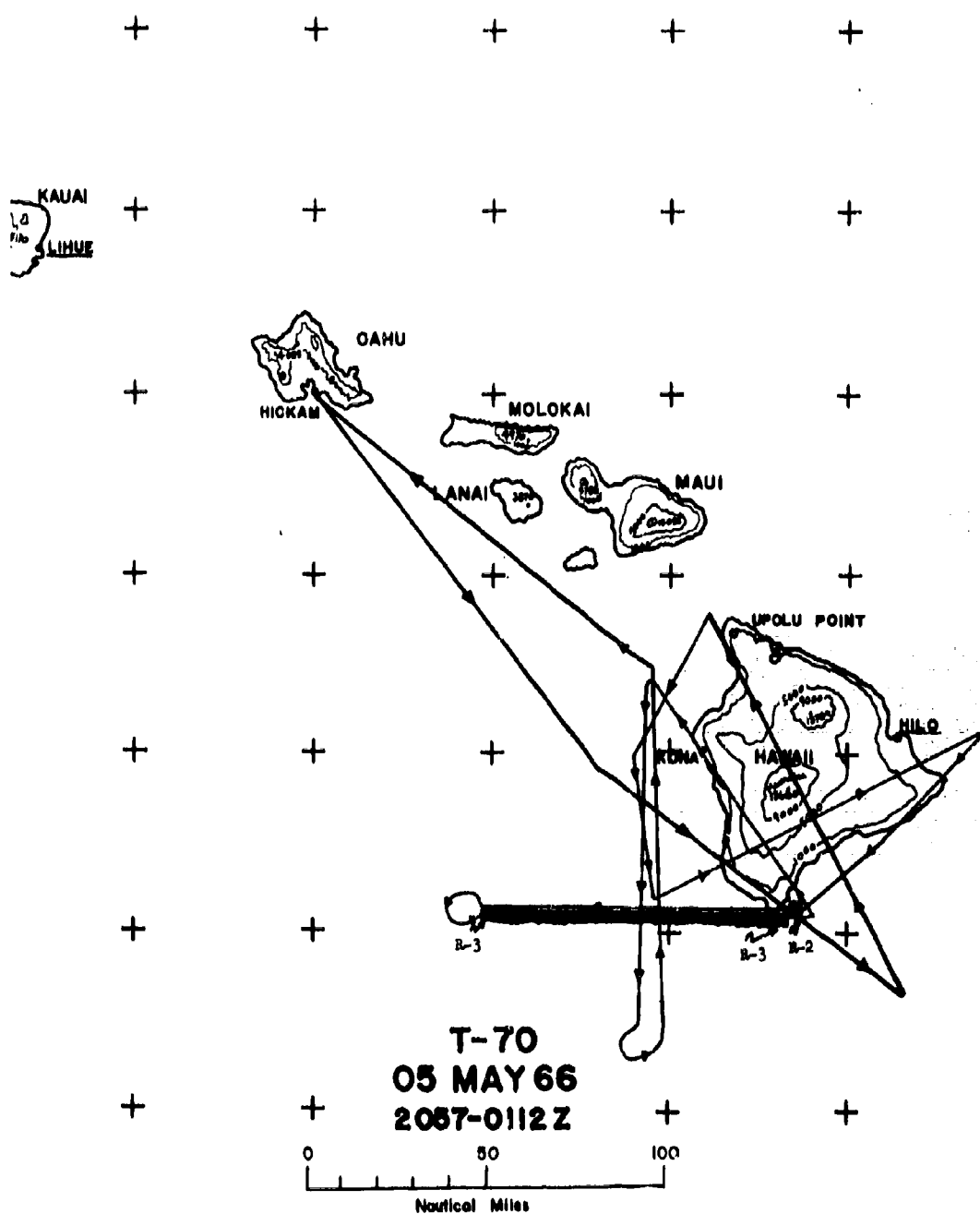
#### Meteorological Summary.

A subtropical high-pressure area with a weak surface pressure gradient covered the area. A trough aloft was situated slightly to the east. A jet stream over the island of Hawaii had maximum winds of 100 knots at 42,000 feet.

#### Pilot Report.

On climbout light turbulence was encountered from 33,000 to 37,000 feet, and some very light at 48,000 feet. No turbulence was present at 60,000 feet over Hawaii. A patch of light turbulence was found at 57,600 feet off the northeast coast near Hilo, and another small patch of light to moderate intensity was found over the southern tip of the island. Photographs show scattered to broken cumulus, alto-cumulus, and streaky cirrus which vary from scattered wisps to thin solid overcast.

Appendix IX



## Appendix IX

Test 71  
6 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

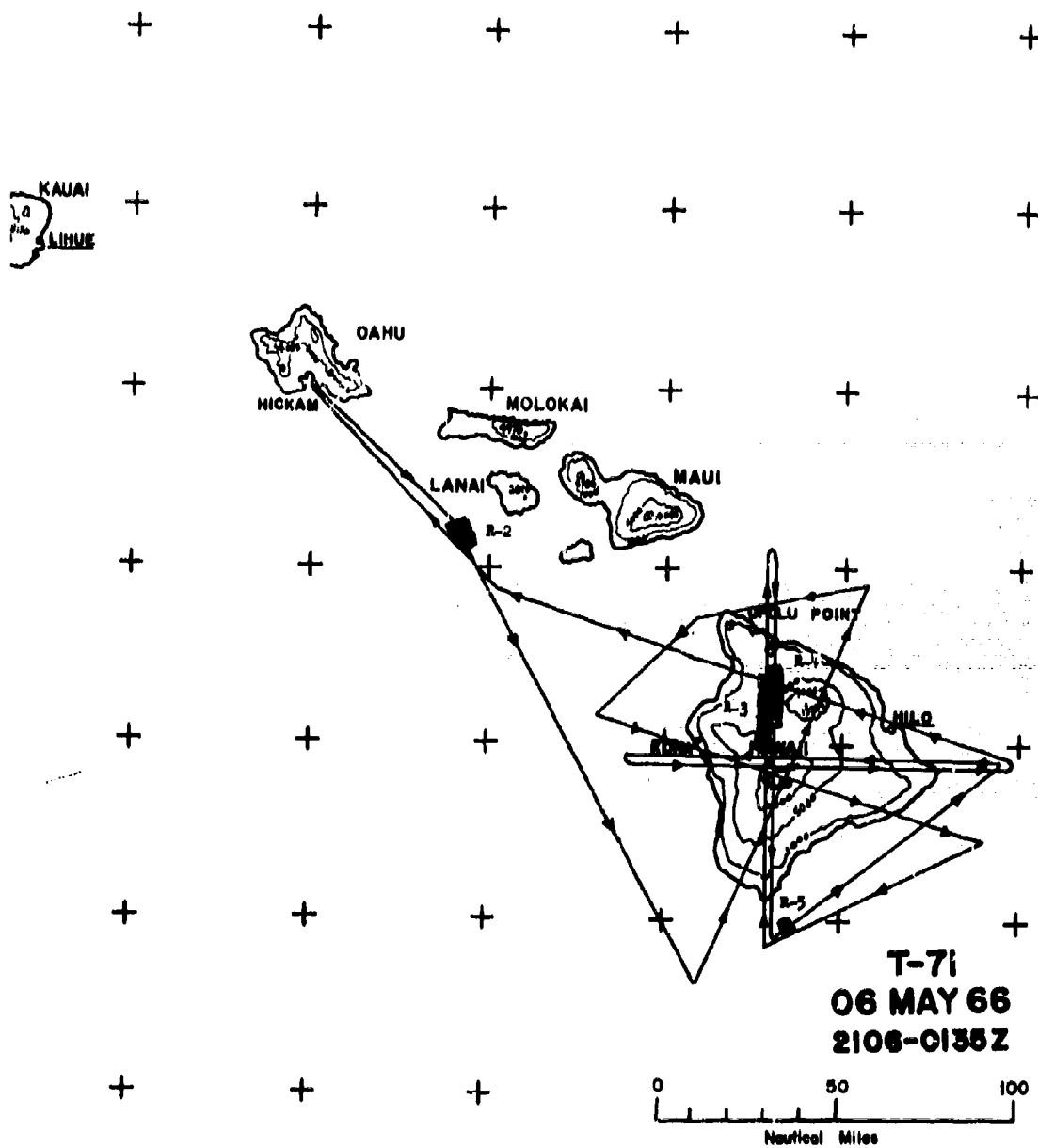
#### Meteorological Summary.

A subtropical high pressure area was centered to north of the islands with weak east-west gradient over the area. Light variable winds prevailed up to 30,000 feet with a westerly jet stream above; maximum speed in the jet was 80 knots at 42,000 feet over Hilo. Turbulence was predicted for the 30,000 to 50,000 foot interval due to strong shear and jet stream.

#### Pilot Report.

Light turbulence was encountered climbing from 29,000 to 45,000 feet. At higher levels, light spotty turbulence was found over the entire area at 55,000 to 57,000 feet from Lanai eastward, and including the island of Hawaii. However, the best area for turbulence was to the east of Maui. On the return trip, light intermittent turbulence was encountered at 56,500 feet all the way back to Lanai. Winds at 60,000 feet were 25 to 30 knots. Clouds over the area were mostly scattered cumulus, alto-cumulus, and some cirrus. The usual layer of strato-cumulus completely surrounded the island of Hawaii. In a few areas, the cirrus appeared to form a thin solid layer of cirro-stratus.

Appendix IX



## Appendix IX

Test 72  
9 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

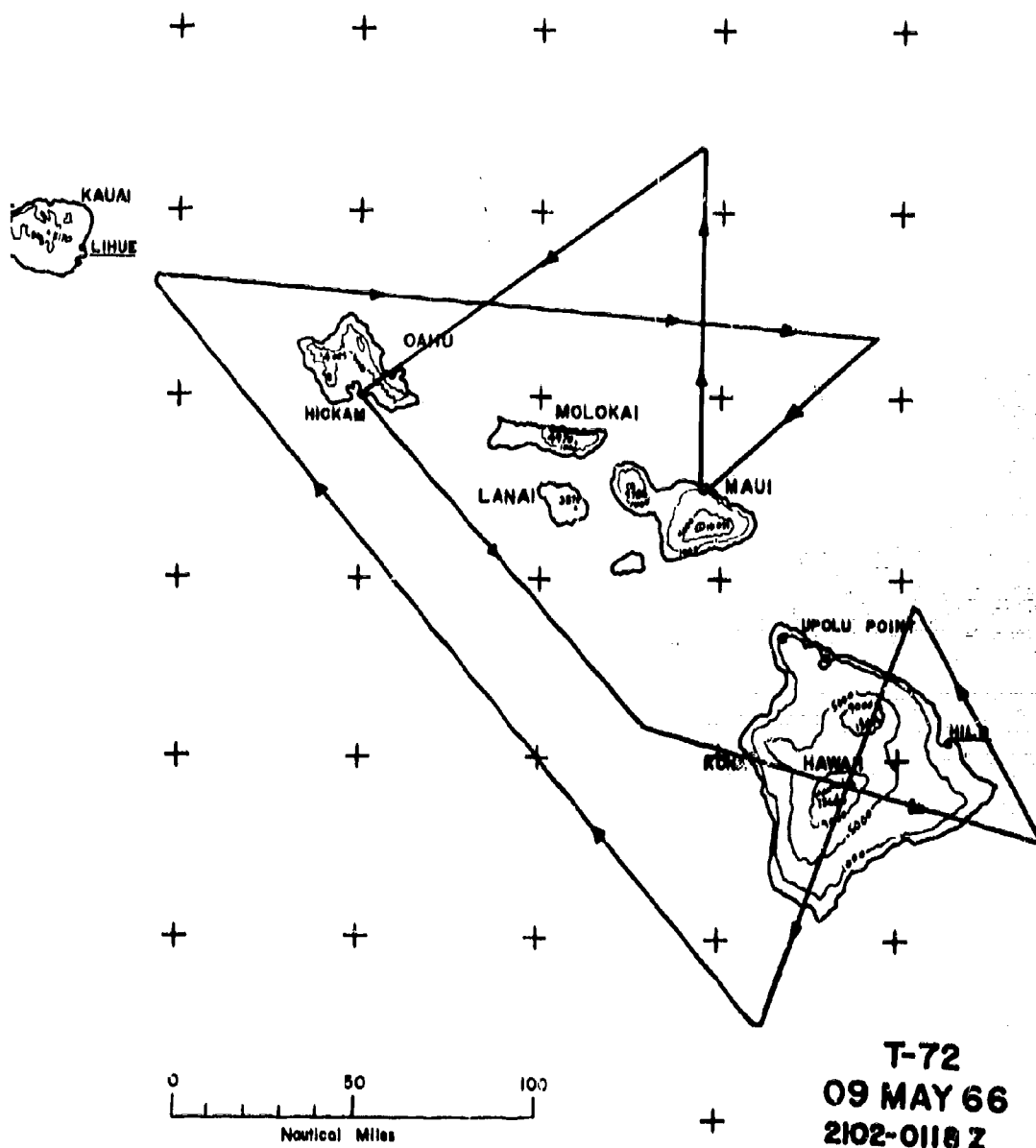
#### Meteorological Summary.

A strong surface high pressure area was centered midway between Hawaii and the west coast of the United States. There was a ridge of high pressure aloft over the islands. Low pressure at the surface and a strong trough aloft were located 850 nmi to the west. Maximum winds were 80 knots over Lihue to the west.

#### Pilot Report.

No significant turbulence was encountered even during climbout. A few nibbles were found at 54,400 feet to the north of Maui, so a pattern was started. However, the pattern was not completed due to a complete absence of turbulence. Clouds over the area included scattered to broken cumulus, alto-cumulus, and a few cirrus.

Appendix IX



## Appendix IX

Test 73  
10 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

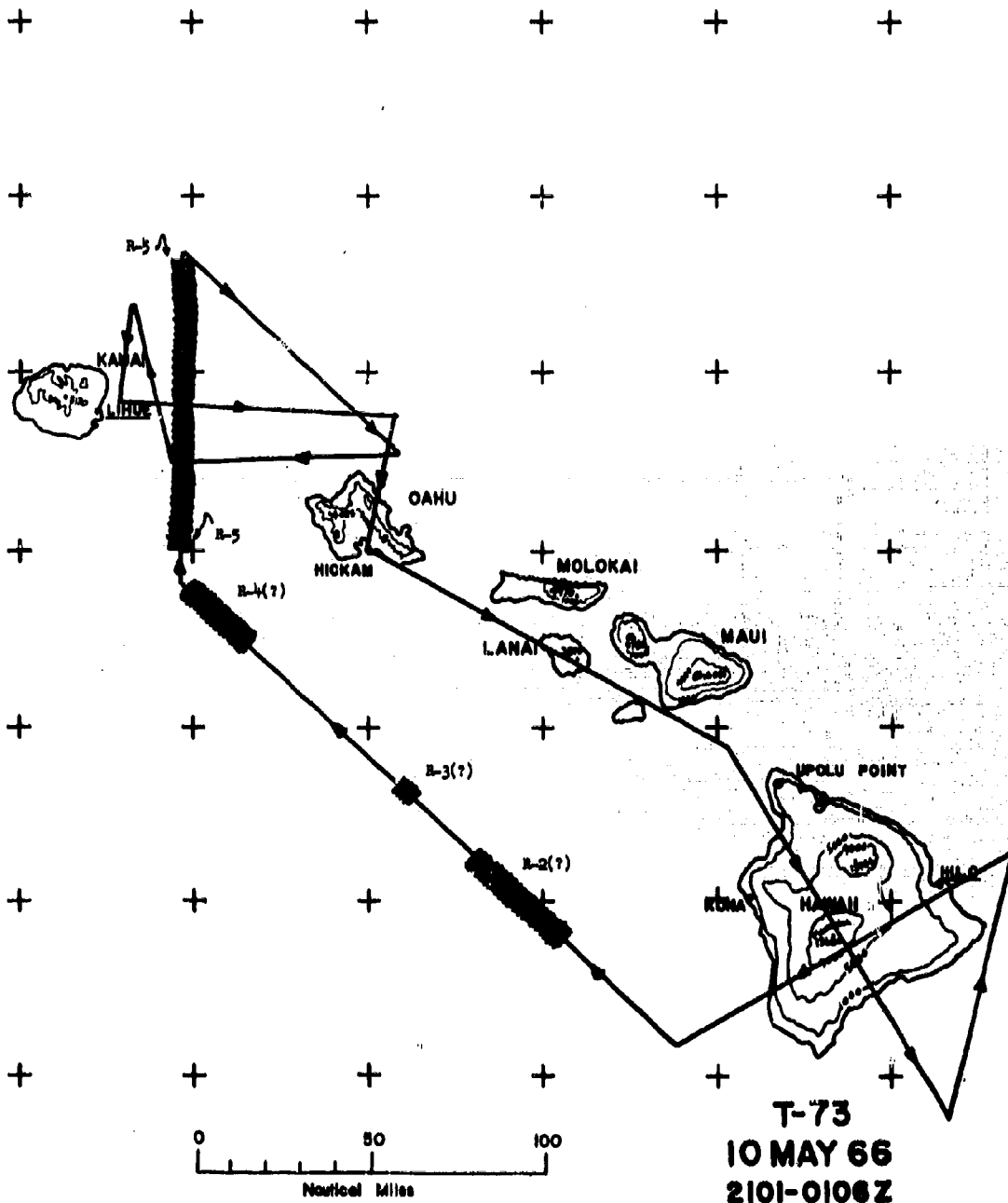
At the surface, pressure was high to the northeast and low to the northwest of the islands. Flow aloft was nearly west to east with no well defined troughs or ridges. Maximum winds over the area were 90 knots at 40,000 feet.

#### Pilot Report.

No turbulence was found over the islands, but on the return flight toward Kauai, a little light turbulence was found between 50,000 and 56,000 feet. The best was at 52,000 feet just southeast of Kauai. One light patch was found northeast of the island. All the turbulence was of about the same intensity - light, and most was encountered while flying south to north. Practically none was found while travelling west to east or east to west. Cloud conditions over the area varied from clear to overcast with cumulus and cirrus which merged into cirro-stratus in the overcast areas.



Appendix IX



## Appendix IX

Test 74  
12 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

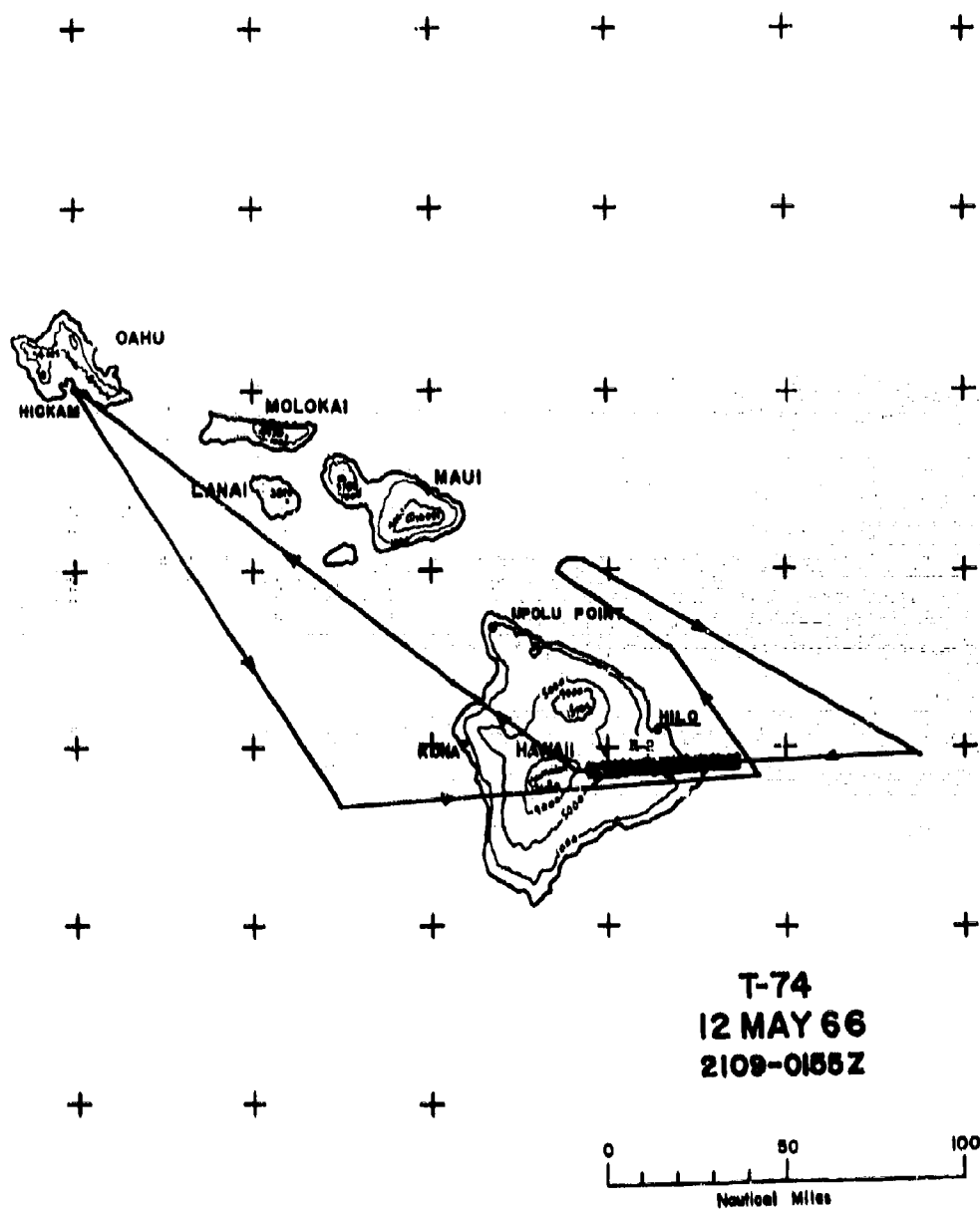
#### Meteorological Summary.

The flow aloft was westerly over the area with a sharp ridge 850 nmi to the east and a trough to northwest. Maximum winds were 85 knots at 42,000 feet. Turbulence was forecast over Hilo at altitudes above 40,000 feet.

#### Pilot Report.

Only very light turbulence was found mostly to the south and east of the Big Island, Hawaii. One layer of very light turbulence occurred at 52,000 to 54,000 feet; a second and a bit heavier layer was found at 55,000 to 57,000 feet. Therefore the pattern was flown at 56,000 feet to the southeast of Hawaii. The pilot noted that the turbulence ceased by the time he had travelled half way across the island heading westward. No temperature changes were noted. The pilot also made a general remark that according to his experience in the Hawaiian area, turbulence is usually encountered somewhere between 30,000 and 45,000 feet while climbing or descending. Clouds in the area of the big island were mostly broken-to-overcast strato-cumulus surrounding the island and only scattered clouds, mostly alto-cumulus over the water.

Appendix IX



## Appendix IX

Test 75  
13 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

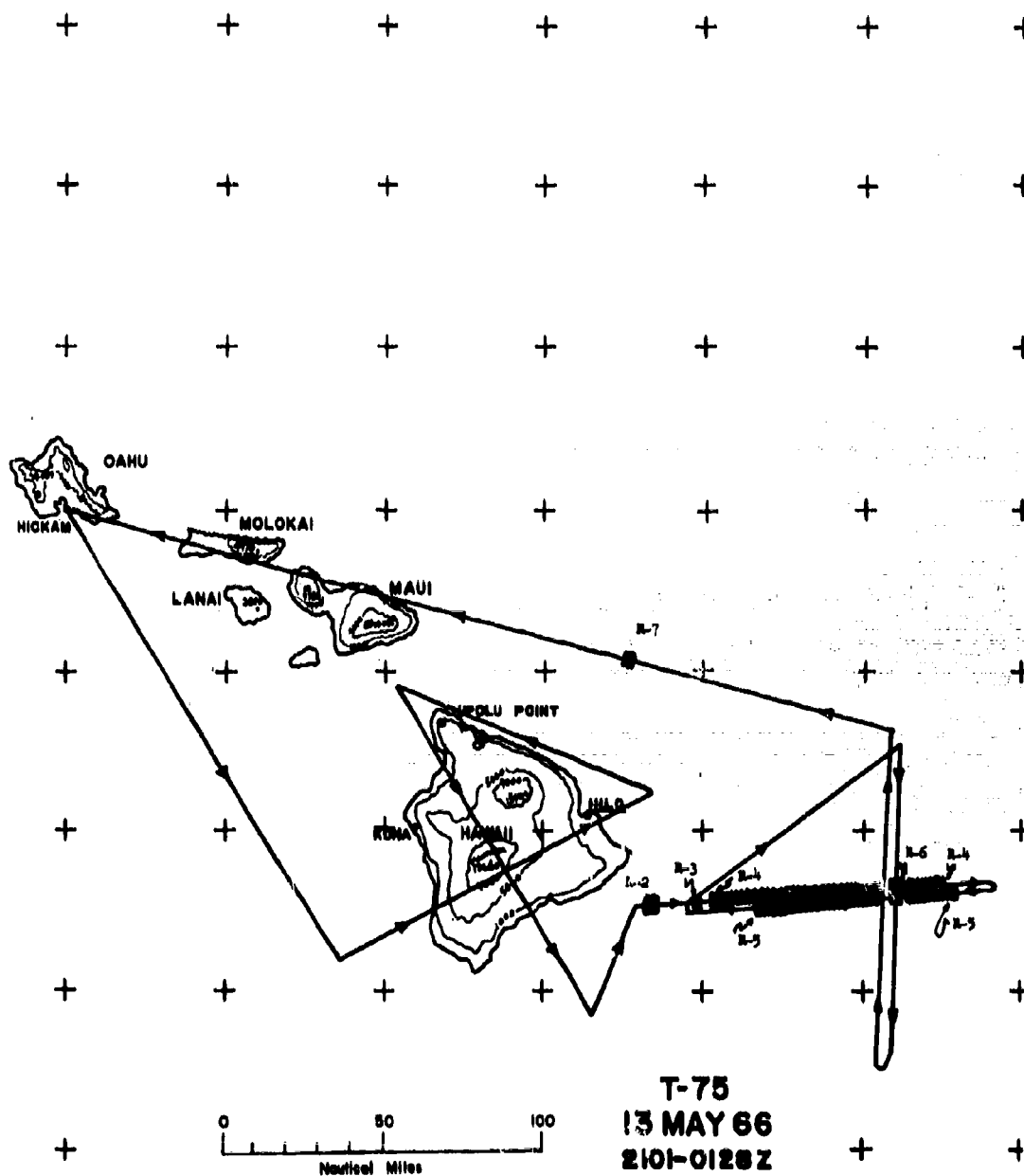
#### Meteorological Summary.

A subtropical high pressure area was centered to the north and a weak east-west surface pressure gradient prevailed over the Islands. A westerly jet stream aloft was associated with an east-west oriented trough. Maximum winds were 95 knots at 42,000 feet. The forecast called for turbulence in the jet stream at 35,000 to 45,000 feet.

#### Pilot Report.

No turbulence was found at 60,000 feet over the island of Hawaii, so the pilot descended. He encountered light turbulence at 52,000 feet beginning at a point about 40 miles east of the island. Good consistent light turbulence, approaching moderate in intensity at times, was encountered while flying the flight pattern farther east of the island. The turbulence was more consistent on the east-west leg than on the north-south leg, but there was not much difference in intensity. The turbulence was concentrated around 52,000 feet. There were none a 1000 feet above or below. A thin cirrus layer covered most of the turbulence area at 47,000 feet. Otherwise, strato-cumulus surrounded all the islands and scattered to broken cumulus occurred over the water.

# Appendix IX



## Appendix IX

Test 76  
16 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

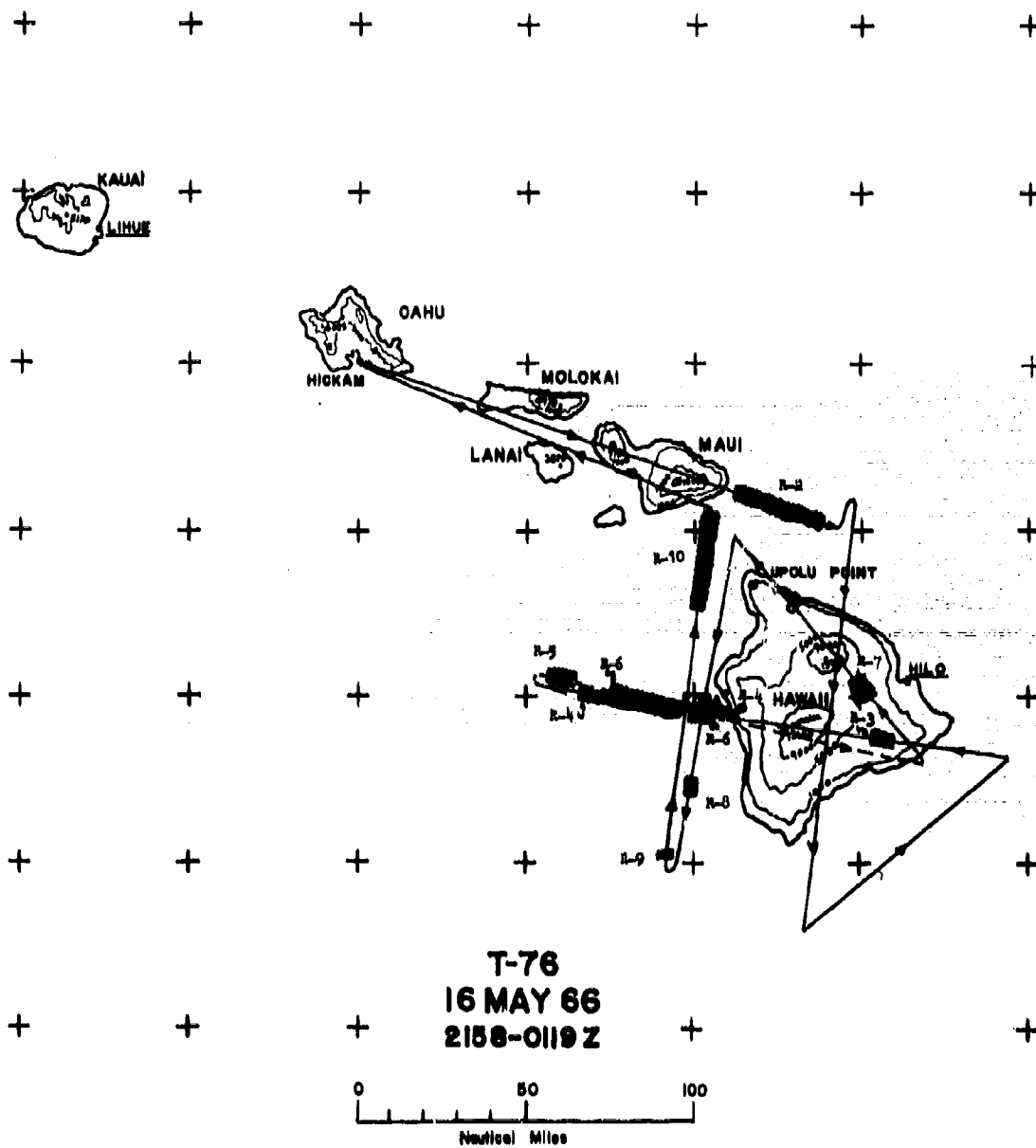
#### Meteorological Summary.

A weak surface low pressure area of the easterly wave type was centered over the islands with a trough and jet stream aloft. Maximum winds were 125 knots at 34,000 to 43,000 feet. There was a cold pool of air aloft over Hilo. Turbulence was predicted from 28,000 to 48,000 feet within the jet stream layer.

#### Pilot Report.

The pilot report was incomplete. Light turbulence was first encountered at 60,000 feet just north of the island of Hawaii. The sky was broken to overcast below. No further notes were made. Photographs show solid strato-cumulus around the big island with large cumulus buildup further inland. Mostly scattered to broken cumulus over the water with a few streaks of cirrus emanating from blowup cumulus tops.

Appendix IX



## Appendix IX

Test 77  
17 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

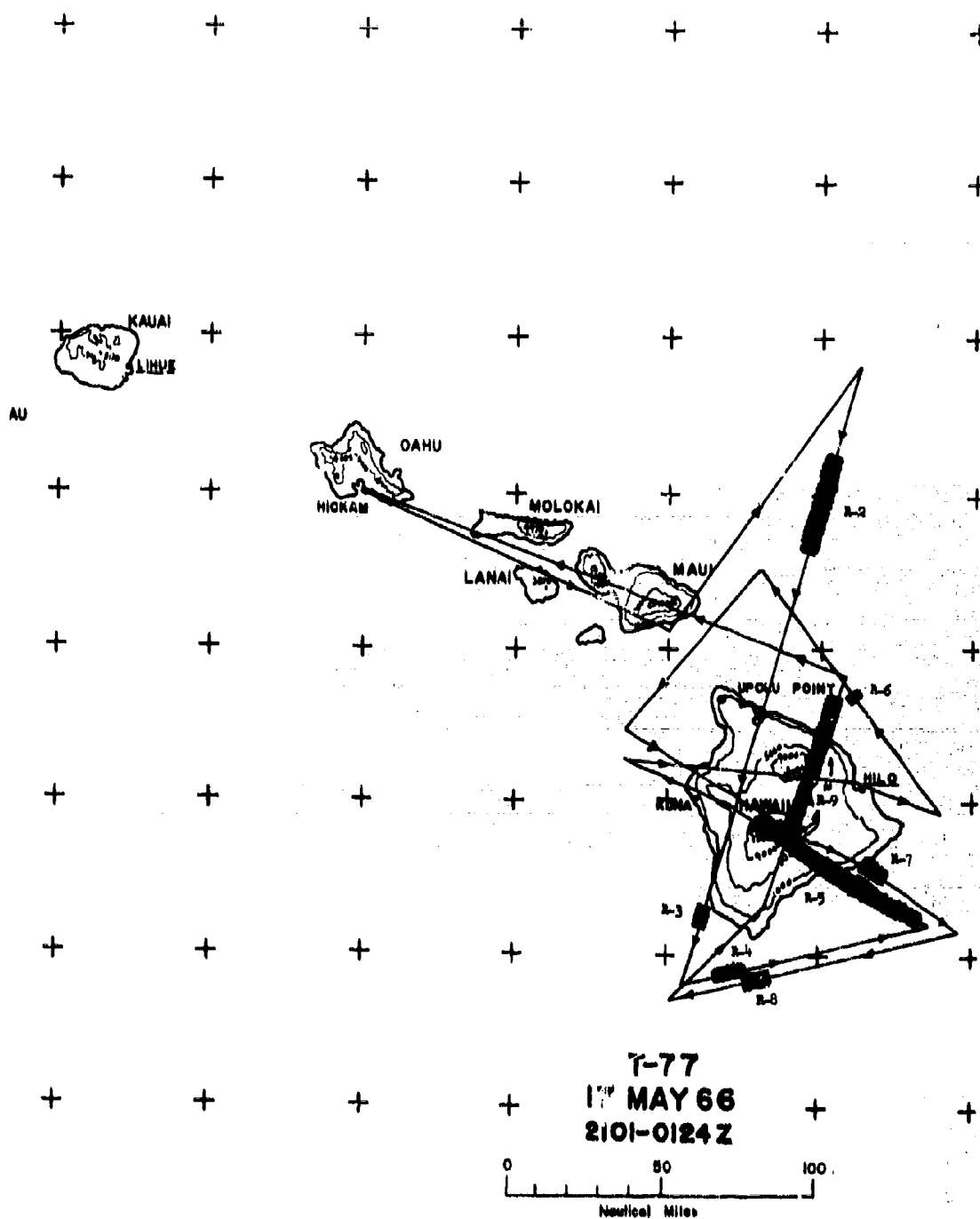
There was a weak trough of low pressure at the surface, but a pronounced trough aloft with a jet stream. Maximum winds were 85 knots at 42,000 feet. Moderate turbulence was forecast over the island of Hawaii at 62,000 to 67,000 feet.

#### Pilot Report.

Turbulence was first encountered at 55,000 feet west of Maui, but none was found over the big island between 60,000 and 68,000 feet. Some pretty good turbulence - light but approaching moderate in intensity - was found at 60,000 feet just south of the island. It was intermittent. A line of thunderstorms could be seen to the distant east. Except for the usual strato-cumulus around the islands, only scattered cumulus and alto-cumulus occurred over the area.



# Appendix IX



## Appendix IX

Test 70  
19 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

#### Meteorological Summary.

A stationary low pressure system covered the area of the surface with a trough aloft. Maximum winds were 80 knots at 42,000 feet. Turbulence was predicted in the area north of the islands between 55,000 and 65,000 feet.

#### Pilot Report.

Quite a bit of moderate turbulence was encountered over Maui and to the east. The pilot stated that he would not wish to encounter turbulence of greater intensity. Turbulence was first noted on climbout at 53,000 and at 55,000 to 56,000 feet. All turbulence of moderate intensity was encountered while flying a pattern at 58,000 feet. The best area was north of Upolu Point off shore from the large island where six minutes of continuous moderate turbulence was encountered. None was encountered at 58,000 feet north of an east-west line through Maui, and none was found at 60,000 feet over the island of Hawaii. No temperature changes were noted. Only a few scattered cumulus clouds occurred over the turbulence area.



## Appendix IX

Test 79  
20 May 1966  
Hickam AFB, Hawaii

### FLIGHT DESCRIPTION

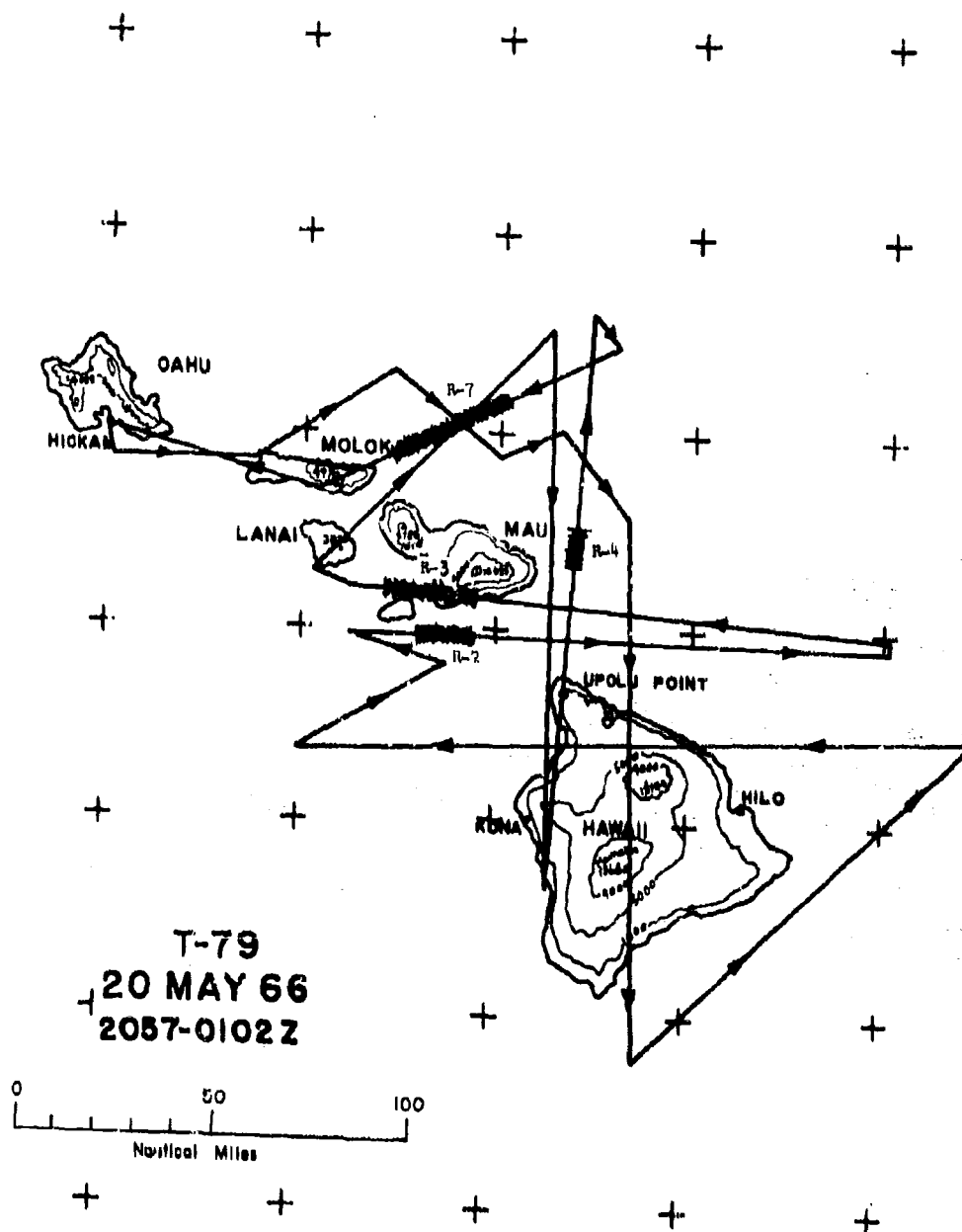
#### Meteorological Summary.

Stationary low pressure prevailed at the surface with trough of low pressure aloft. Maximum winds were 75 knots at 40,000 feet.

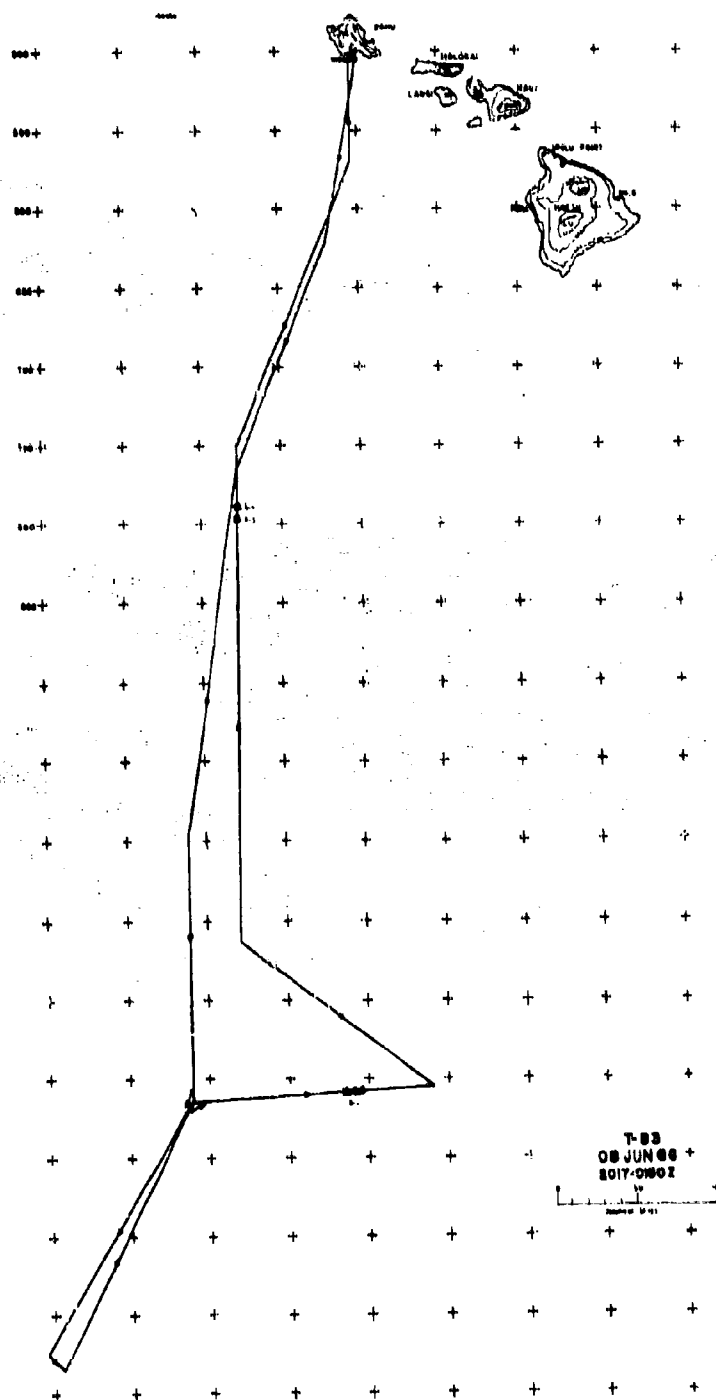
#### Pilot Report.

No turbulence to speak of was encountered in the altitude range of 50,000 to 60,000 feet while flying the flight pattern over the island of Hawaii. The pilot was of the opinion that the little turbulence he did encounter at 50,000 feet in the extreme western portion of the pattern was associated with a north-south line of thunderstorms advancing across the area south of Lanai toward Hawaii. The tops extended up to 50,000 feet in the north and 55,000 feet in the south. Most had anvil tops. The photographs show that the aircraft was in or close by the anvil thunderstorm tops in the area south of Maui and west of Hawaii.

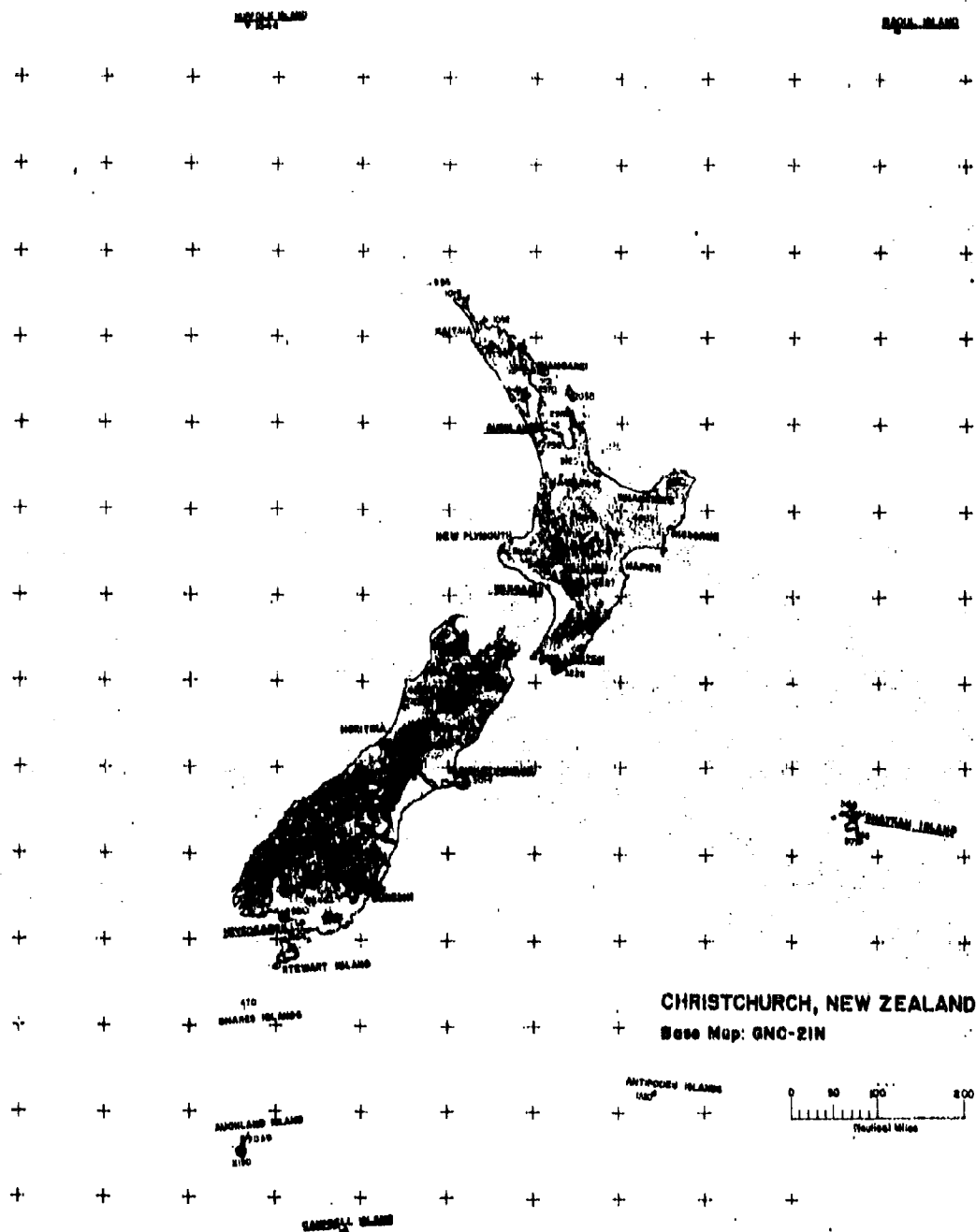
Appendix IX



# Appendix IX



# Appendix IX



Christchurch, New Zealand, Operational Area Map

## Appendix IX

Test 86  
16 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

#### Meteorological Summary.

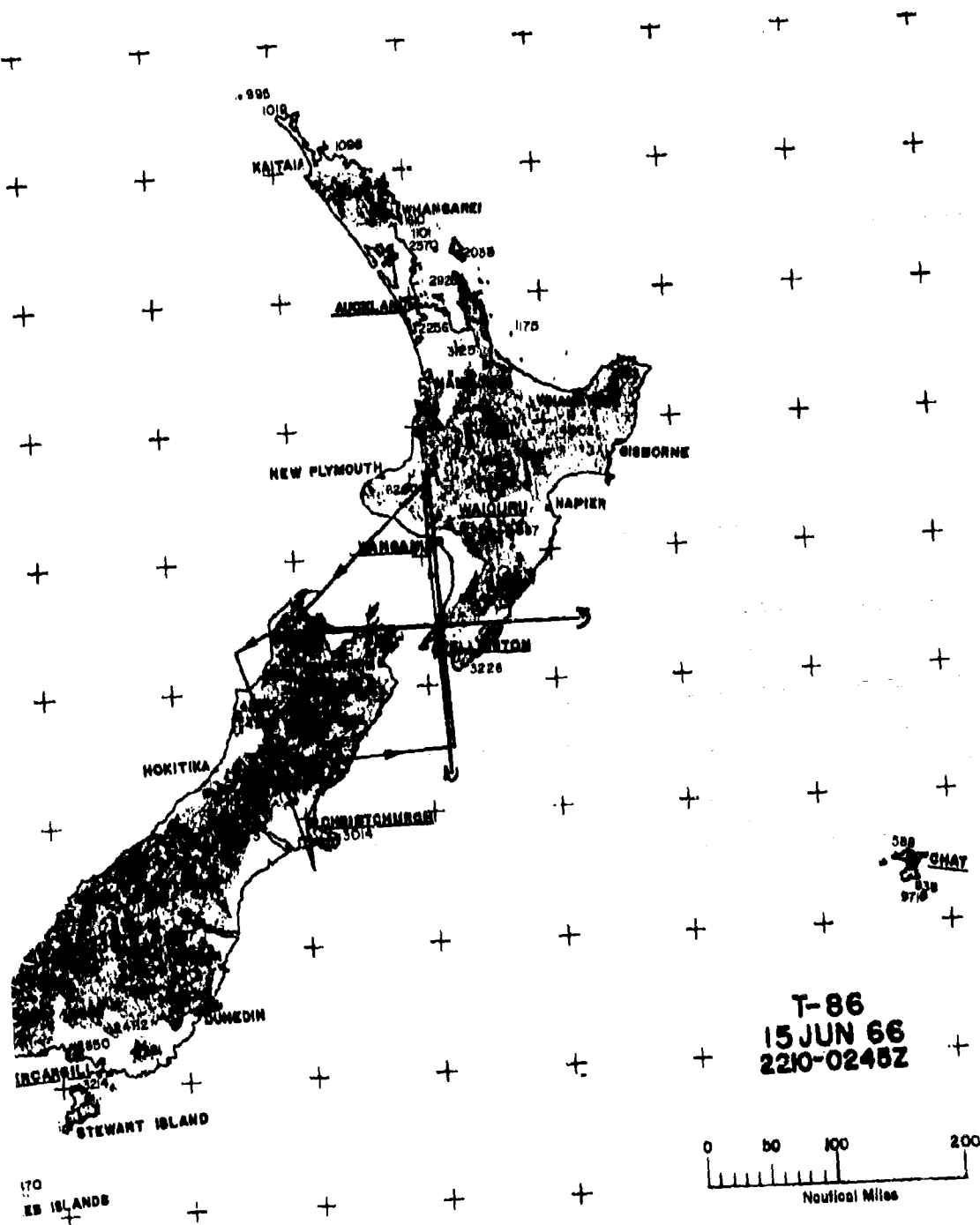
Meteorological records not available.

#### Pilot Report.

No pilots debrief tape. Pilots written notes describe a patch of light to moderate turbulence at 51,000 feet about 200 miles east of North Island; no other turbulence was noted.



# Appendix IX



## Appendix IX

Test 87  
17 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

#### Meteorological Summary.

There was a west to east jet stream with maximum winds of 140 knot, north of New Zealand centered around 32°S. Maximum winds over New Zealand were 65 knots at 45,000 feet. The tropopause occurred at 200 mb with no north-south slope. At the surface, low pressure was centered west of North Island at 38°S 158°E.

#### Pilot Report.

The pilot reported moderate turbulence at 53,000 feet in the area around 37°S 167°E, i.e., about 300 miles due west of Auckland; the thickness of the turbulent layer was about 1000 feet. There were only scattered clouds below except in the extreme northern portion of flight where it was overcast. The B-47 accompanying the flight encountered heavy turbulence at 32,000 feet in about the same turbulent area noted by the HICAT aircraft.



## Appendix IX

Test 88  
21 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

#### Meteorological Summary.

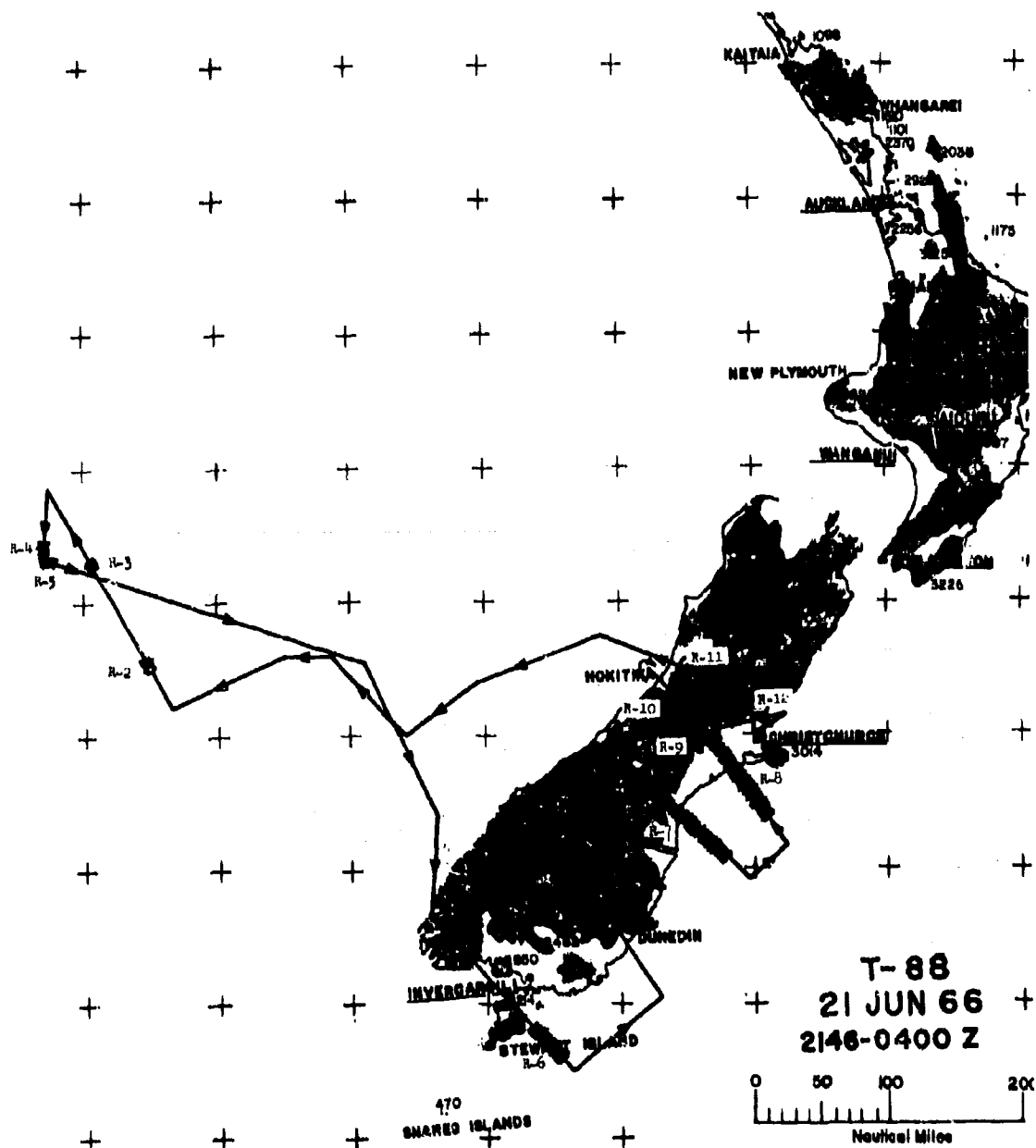
A deep northwesterly flow from the Tasman Sea was accompanied by a developing low pressure wave at the surface over South Island. Turbulence was forecast over the area of the developing wave and to lee of the mountains. The tropopause was slightly above 300 mb over the entire area. Maximum winds were 75 knots at 30,000 feet over the southern tip of South Island.

A detailed analysis after the flight of the Christchurch radiosonde showed that the tropopause was at 34,000 feet. The temperature increased 8°C in the 2000-foot layer from 34,000 to 36,000 feet. It was isothermal from 36,000 to 40,000 feet, (the layer of severe turbulence), and dropped 3°C between 40,000 and 42,000 feet. Another stable layer was located above 42,000 feet.

#### Pilot Report.

Severe turbulence was encountered on climbout over the mountains between Christchurch and Hokitika at 36,000 to 41,000 feet, but there was none between 41,000 and 63,000 feet. Slight turbulence was found at 51,000 over the water west of South Island. Light turbulence was encountered at 53,000 feet over the island. It was intermittent, lasting from 2 to 4 minutes, and was confined entirely to the east side of the island. The turbulence was strongest just to the lee of the mountains but some very light turbulence extended as far as 50 miles off the east coast. During descent, the turbulent layer extended from 53,000 to 50,000 feet. The air was then smooth down to 40,000 feet, severely turbulent from 40,000 to 36,000 feet, and smooth in clouds starting at 34,000 feet. The cloud base was 25,000 feet. The sky was overcast throughout the greater portion of the flight.

Appendix IX



T-88  
21 JUN 66  
2146-0400 Z

## Appendix IX

Test 89  
22 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

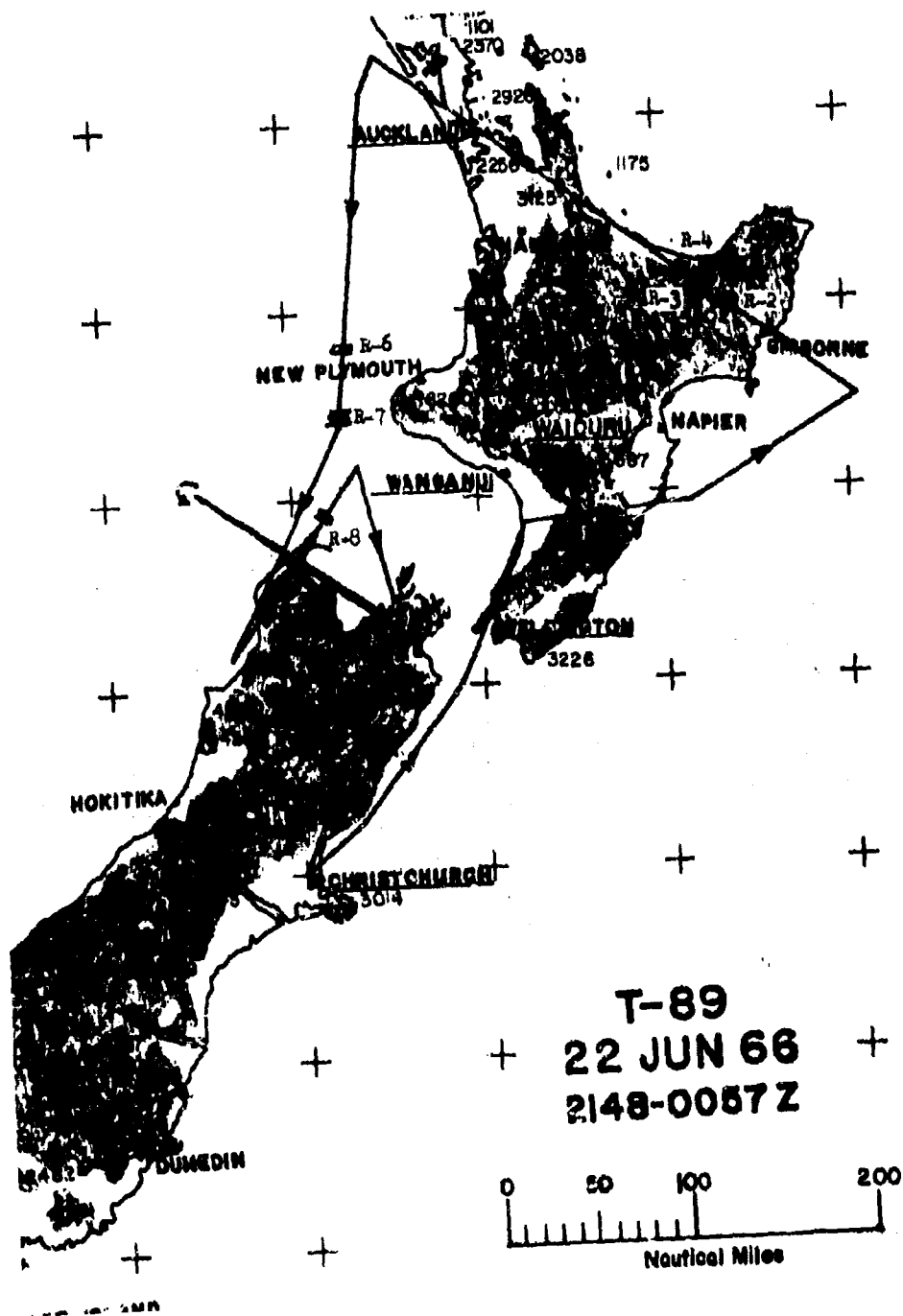
#### Meteorological Summary.

A low pressure area at the surface was centered over South Island. A trough aloft located just west of the islands produced a north-northwesterly flow over the area. Maximum winds were 86 knots at 34,000 feet over Christchurch. The main jet stream was located well to the north around 30°S. Lee waves were considered a possibility.

#### Pilot Report.

The pilot reported light turbulence just east of the North Island at 51,000 and 58,000 feet. At a point approximately 200 nm N of Christchurch, turbulence was found at 54,000 feet oriented in a north-south pattern, but not on the east-west leg. In this case, the turbulence was in a 2000 feet band.

Appendix IX



## Appendix IX

Test 90  
24 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

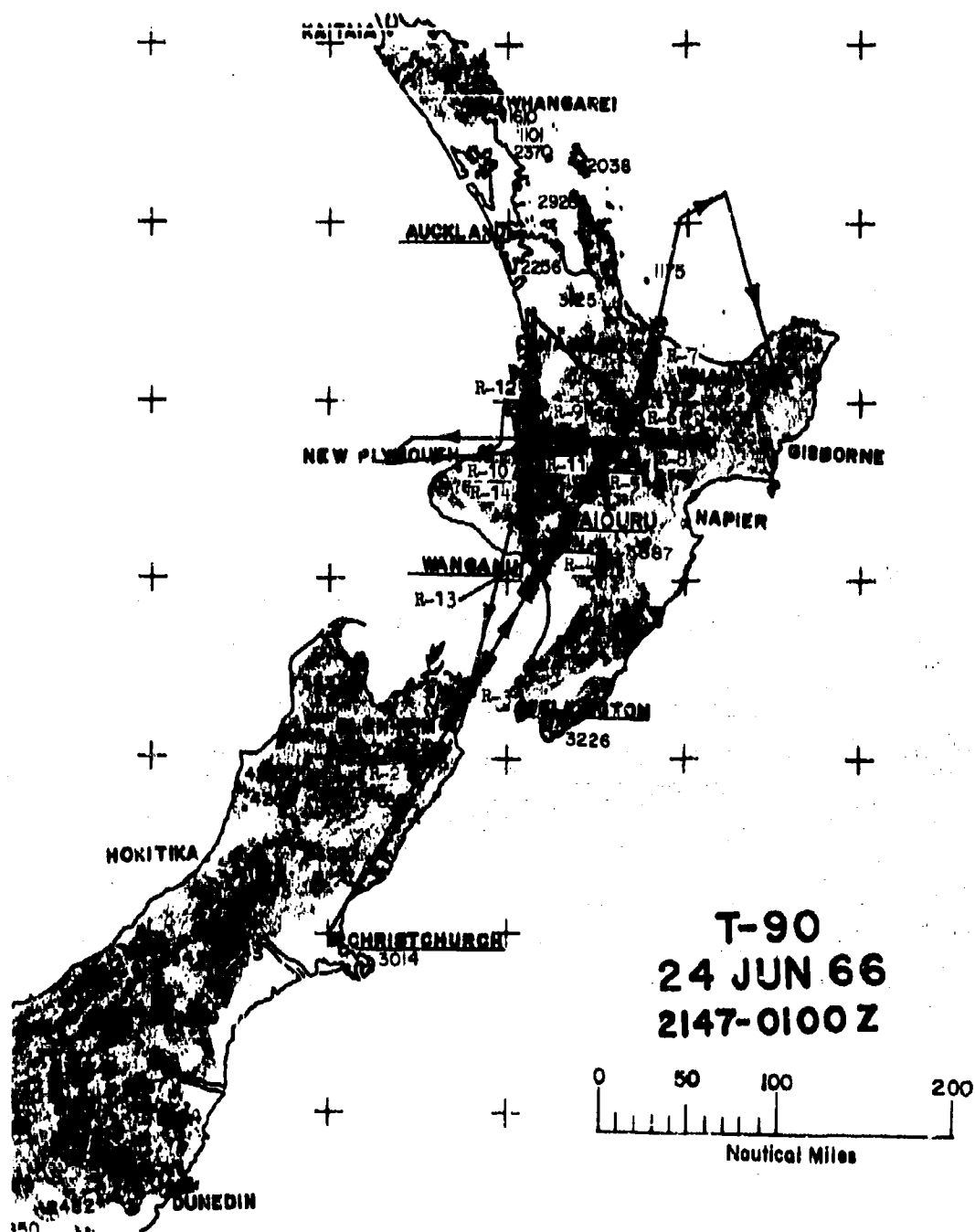
#### Meteorological Summary.

Very little high level data was obtained on this day, but it appeared that there was a converging of the polar and subtropical jet streams in the region just to the east of North Island. Hence, lee waves were considered a possibility.

#### Pilot Report.

Light to moderate turbulence was found over North Island. The pilot reported the turbulent layers had a sharp bottom at 59,000 feet, but a more gradual top varying from 63,500 to 64,000 feet. The pilot noted a 9°C temperature rise on the east-west leg followed within seven minutes by a fall of the same amount while flying west to east across North Island at 61,500 feet. Light turbulence was occurring at the time. Most of the turbulence was confined to the west side and center of North Island. The B-47, which accompanied the HICAT aircraft for this test, experienced moderate, continuous turbulence at 32,000 feet on a north-south track east of the channel between the North and South Islands.





## Appendix IX

Test 91  
27 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

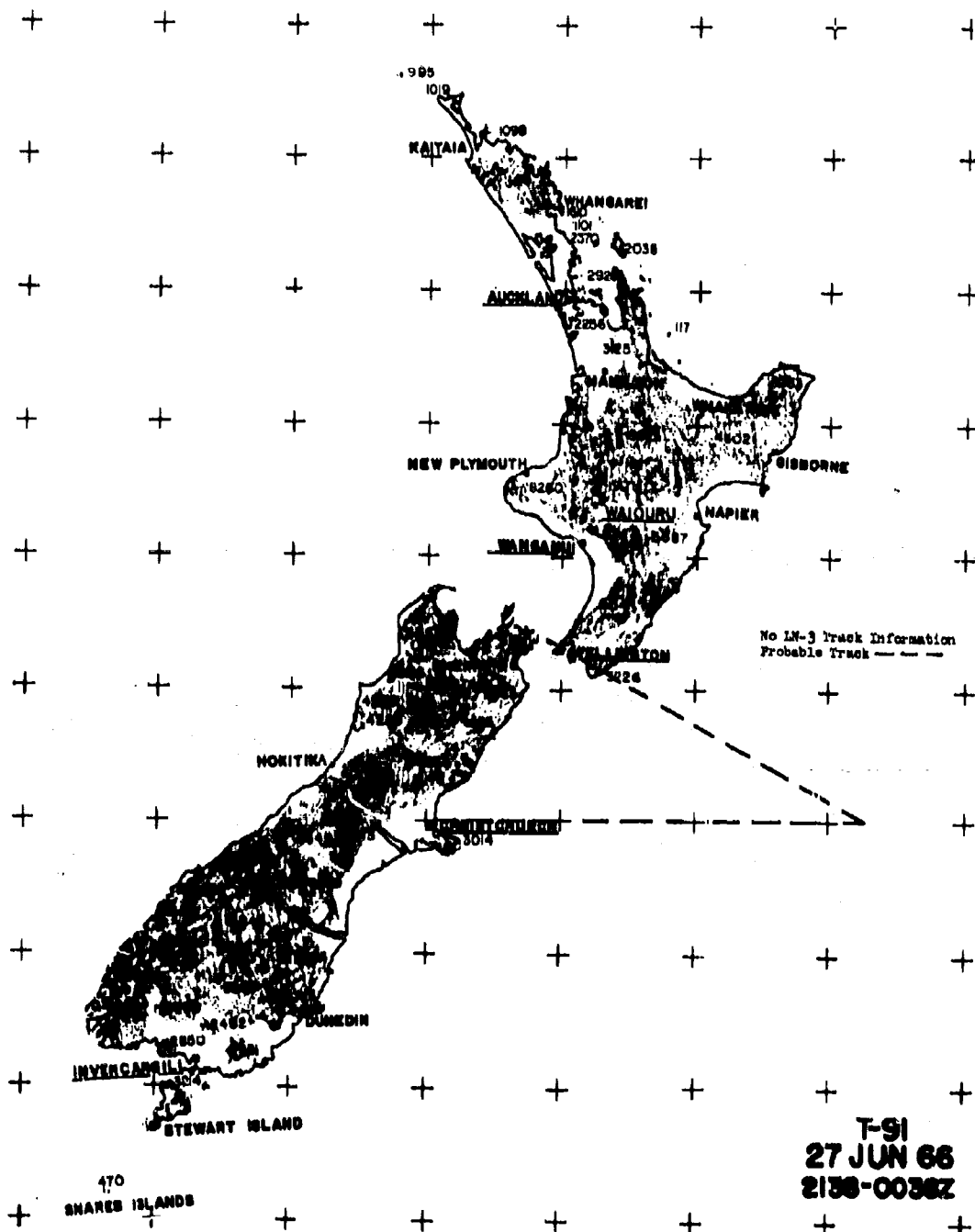
#### Meteorological Summary.

A trough aloft located over South Island and just to west of North Island was accompanied by a northwesterly flow over the area. At the surface, a low pressure area and cold front were located just to the east of the Islands. Maximum winds were 110 knots over North Island. Turbulence was predicted in the trough area around coordinates (0 nmi N, 330 nmi E).

#### Pilot Report.

The pilot reported a few bumps of light to moderate turbulence at 60,000 feet east of Wellington.

Appendix IX



Appendix IX

Test 92  
29 June 1966  
Christchurch, New Zealand

FLIGHT DESCRIPTION

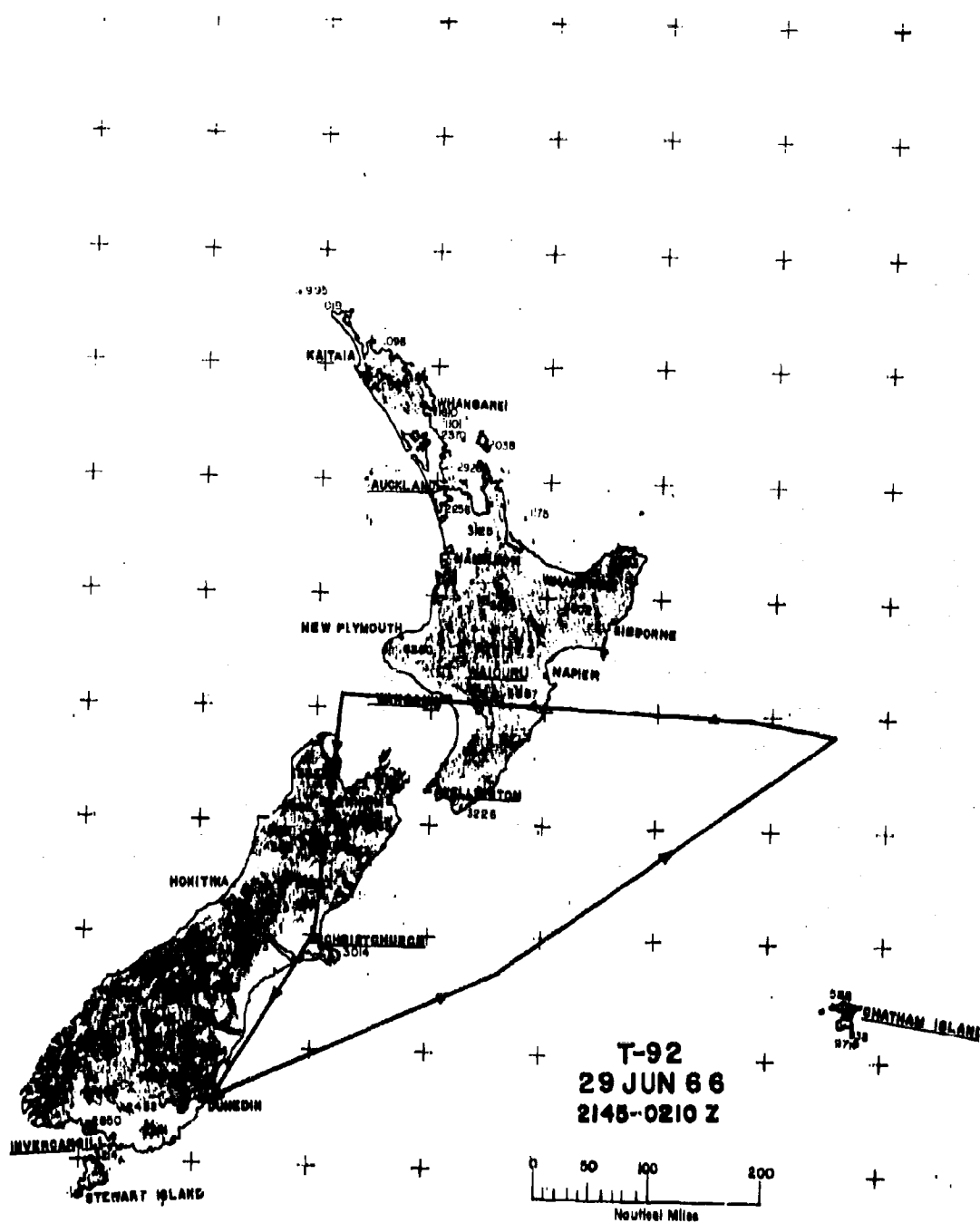
Meteorological Summary.

Pressure was low at the surface and a sharp trough aloft was centered over the islands. Turbulence was predicted in the trough area. Maximum winds were 102 knots at 27,000 feet over Invercargill.

Pilot Report.

The pilot reported only a few ripples of very light turbulence at 63,000 feet off the east coast of North Island.

# Appendix IX



## Appendix IX

Test 93  
30 June 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

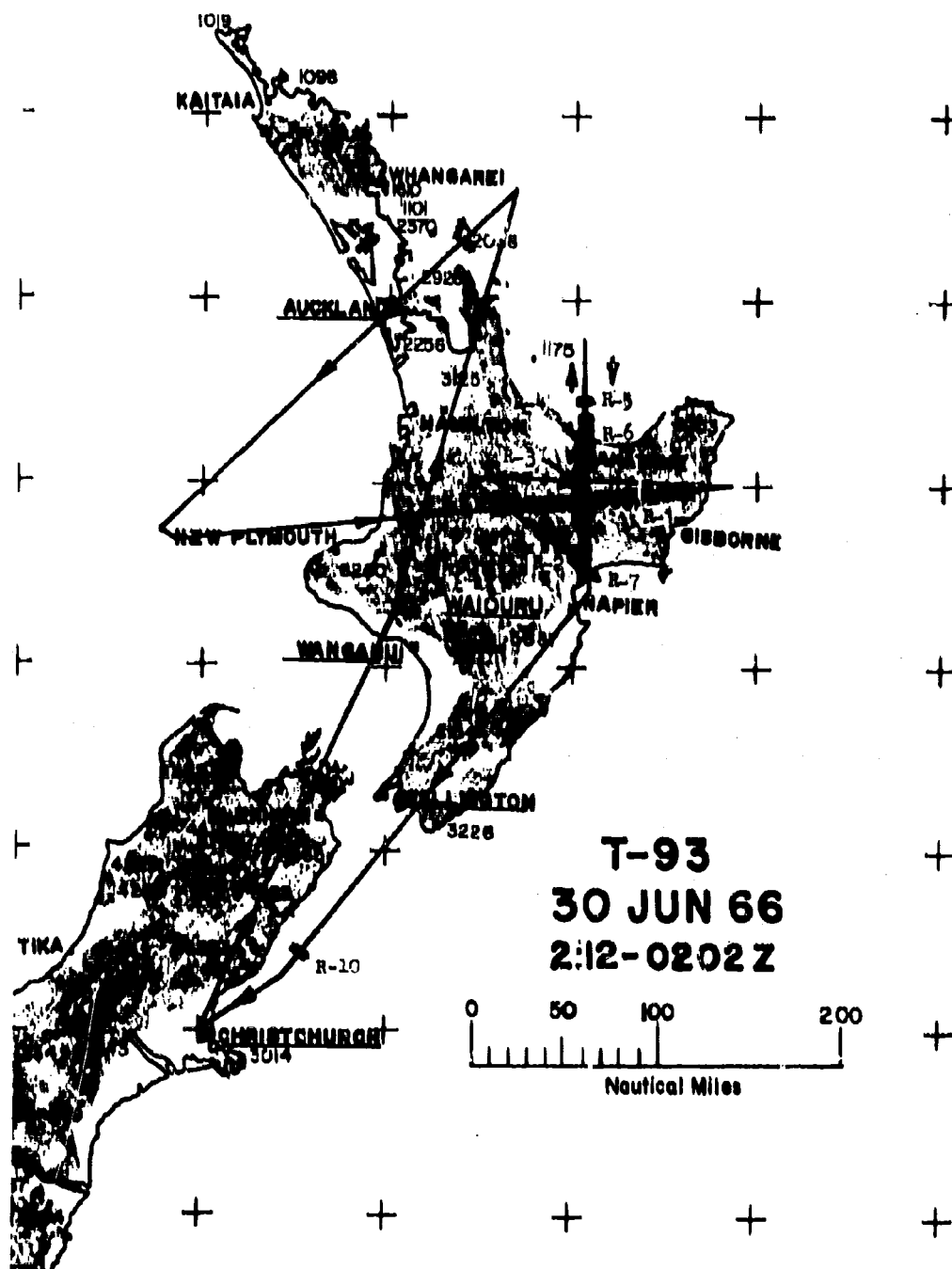
#### Meteorological Summary.

A large surface high pressure center covered the area between New Zealand and Australia. A trough aloft to east of the islands produced a southerly jet stream with maximum winds of 108 knots at 40,000 feet. The tropopause was close to 200 mb. Turbulence was expected due to cold air advection in the southerly jet.

#### Pilot Report.

The pilot was instructed to fly at 50,000 feet north from Christchurch and to search for turbulence in the event he noticed a change in temperature. However, no temperature change and no turbulence were experienced by the time he had passed completely over the west side of North Island. Upon flying from west to east across North Island at 52,500 feet, moderate turbulence was encountered beginning at about the center of the island and continuing almost to the east coast near Gisborne. The turbulent zone was only one to two thousand feet thick. No turbulence was encountered on the way back to Christchurch. The pilot noted that the winds at 50,000 feet were westerly at 30 knots.

Appendix IX



## Appendix IX

Test 94  
1 July 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

#### Meteorological Summary.

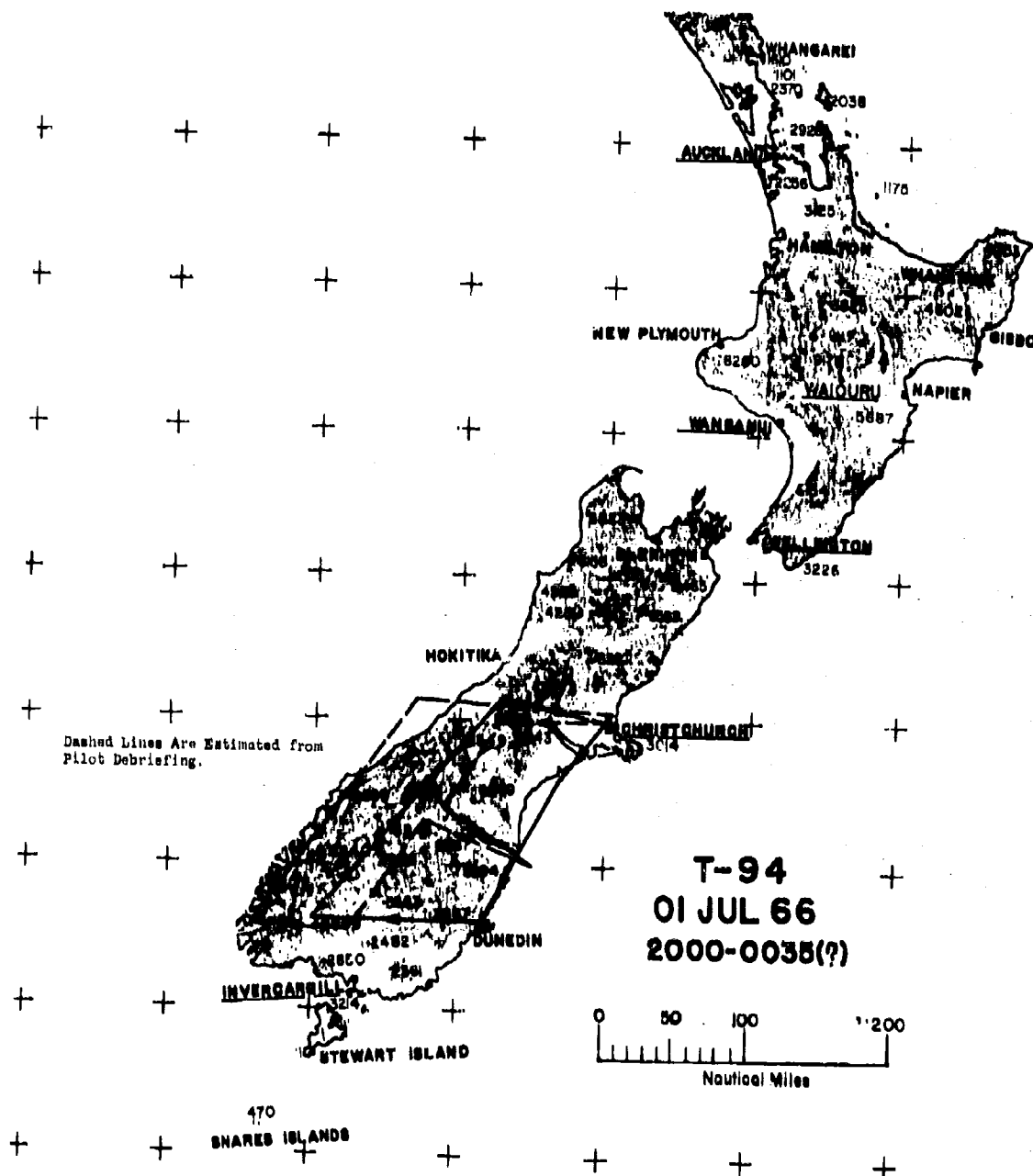
Southwesterly flow aloft was occurring behind a trough of low pressure located at 176°W. Cold air advection occurred at heights above 60,000 feet. The tropopause was near 200 mb. Possible wave formation was forecast over the mountains of South Island. Maximum winds were 65 knots at 36,000 feet. The flight track, however, was based on an experiment devised by Dr. William Hildreth, Lockheed Meteorologist.

#### Pilot Report

He reported no significant turbulence over South Island in the altitude range 50,000 to 60,000 feet except for some very light CAT at 60,000 feet just north of Dunedin. In general it was a very smooth flight.



## Appendix IX



## Appendix IX

Test 95  
8 July 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

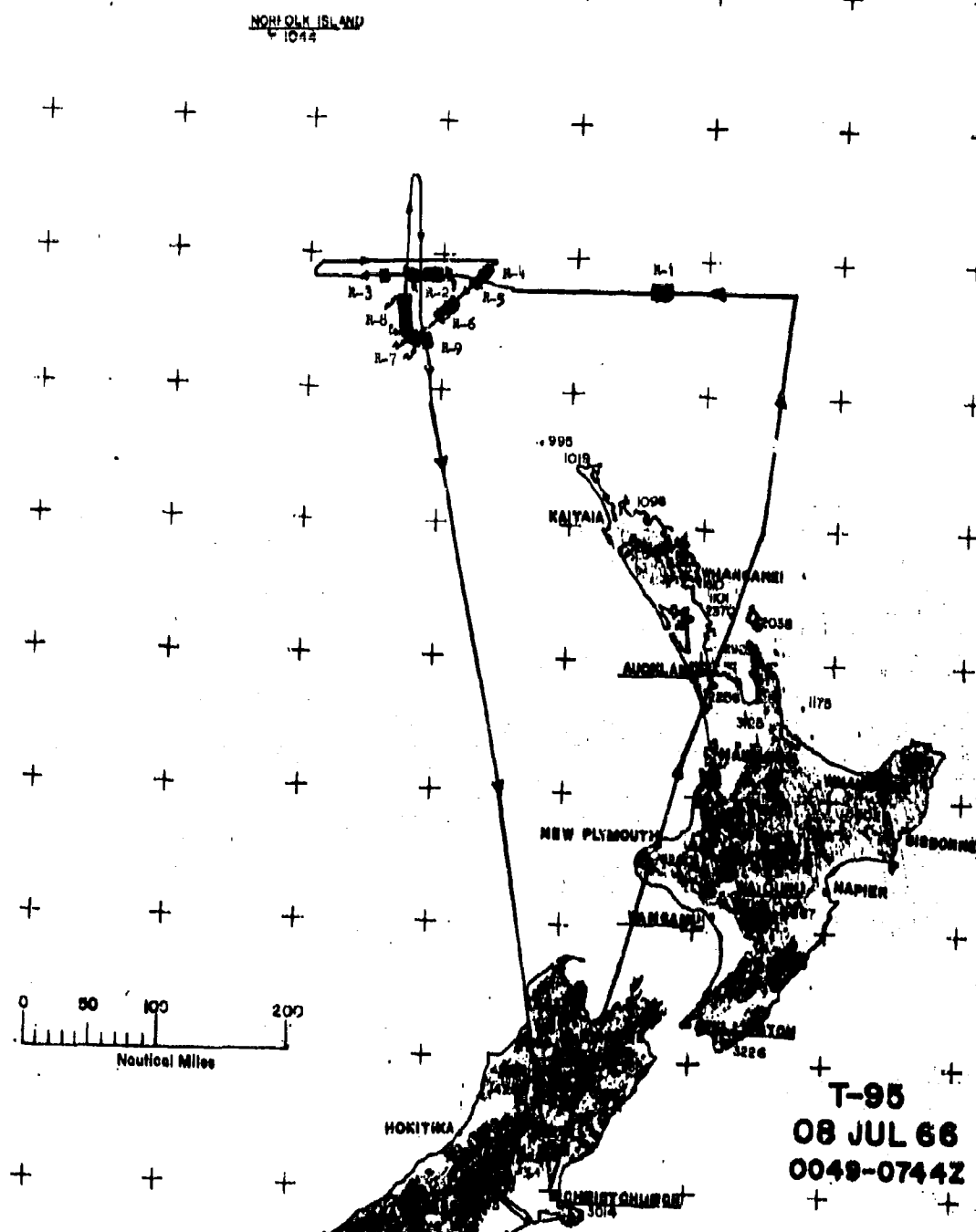
#### Meteorological Summary.

A deepening surface depression was located just west of North Island accompanied by a pronounced trough of low pressure aloft. There was a northwesterly flow aloft over the area. Maximum wind speeds were 80 knots at 35,000 feet over North Island. The forecast called for possible turbulence over the intensifying depression and possible waves to the lee of Mount Cook.

#### Pilot Report.

No turbulence was encountered in the vicinity of Mount Cook and, in fact, none in the height range 40,000 to 63,000 feet anywhere between Christchurch and Auckland. Upon heading west out over the ocean toward the center of the trough aloft, some light turbulence was found at 52,000 feet in the area 700 nmi north of Christchurch between coordinates (150 nmi E) and (110 nmi W). It was spotty lasting only a minute or two at a time. Winds at flight altitude were 30 to 40 knots and no temperature changes were noted. The sky was mostly overcast below in the area of the turbulence. The clouds occurred in layers. The top layer was 25,000 to 30,000 feet. Photographs show that the clouds were cirrus and cumulo-form. At coordinates (700 nmi N, 110 nmi W), some of the cirrus appear streaky and lenticular shaped. On the return leg to Christchurch, the clouds below were broken and mostly alto-cumulus occurring in parallel rows. A few cumulo-nimbus with anvil tops were also evident. No significant turbulence was noted by the pilot during this portion of the flight.

# Appendix IX



## Appendix IX

Test 96  
11 July 1966  
Christchurch, New Zealand

### FLIGHT DESCRIPTION

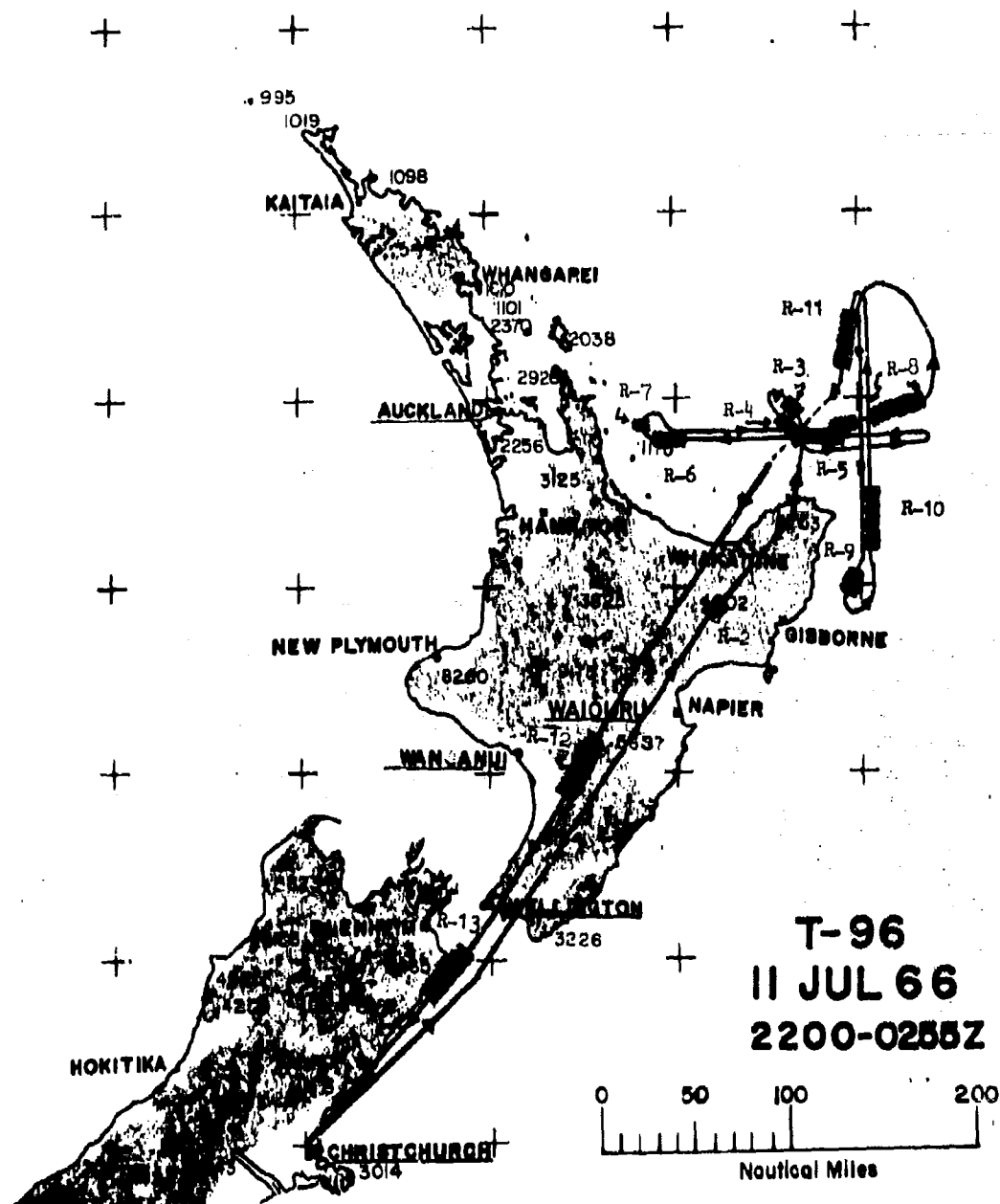
#### Meteorological Summary.

A trough of low pressure aloft was accompanied by a westerly jet stream across North Island. Maximum wind speeds were 75 knots at 25,000 feet. Lee waves were forecast for the east side of North Island.

#### Pilot Report.

A little light turbulence was encountered between 51,000 and 53,000 feet over the straits near Wellington. The main turbulence area was at 51,000 feet off the northeast coast of North Island. It was mostly moderate in intensity. The turbulence area appeared to be moving or dissipating as it was not encountered during a second flight through the same area. The pilot stated that it was the best experienced in the New Zealand area. Upon returning to Christchurch, light to moderate turbulence was encountered between 67,000 and 70,000 feet on the east side of North Island. The turbulence continued off and on for about 120 miles. The pilot reported experiencing no transition zone between turbulence areas, i.e., it was either light around 0.1g or moderate around 0.3 to 0.4g. There was no significant turbulence during the climb from 53,000 to 67,000 feet. The photographs indicate a solid cirrus overcast below in the turbulence area off the north coast and broken cumulo-form clouds over the mountains of North Island.

Appendix IX



Appendix IX

Test 97  
12 July 1966  
Christchurch, New Zealand

FLIGHT DESCRIPTION

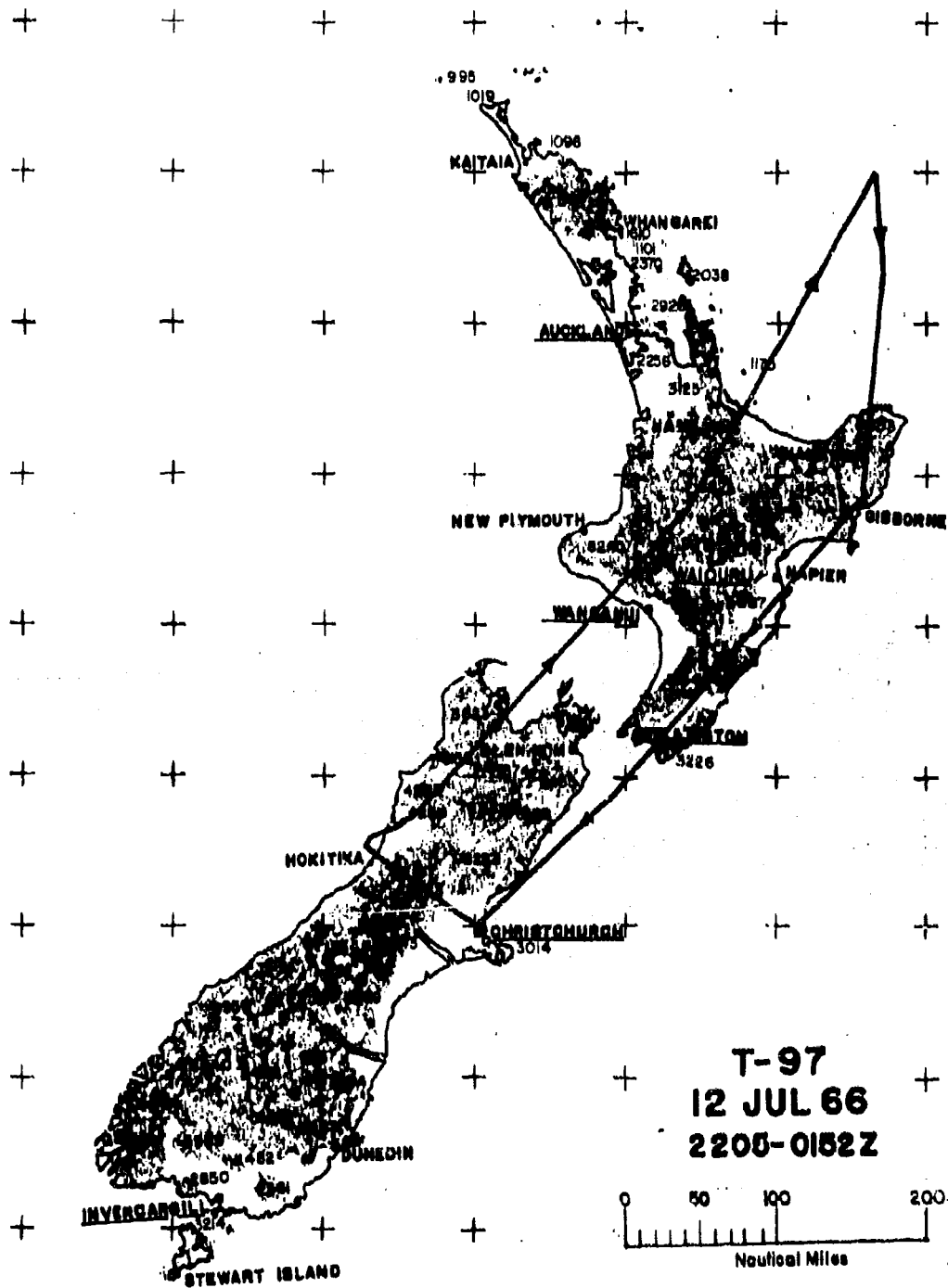
Meteorological Summary.

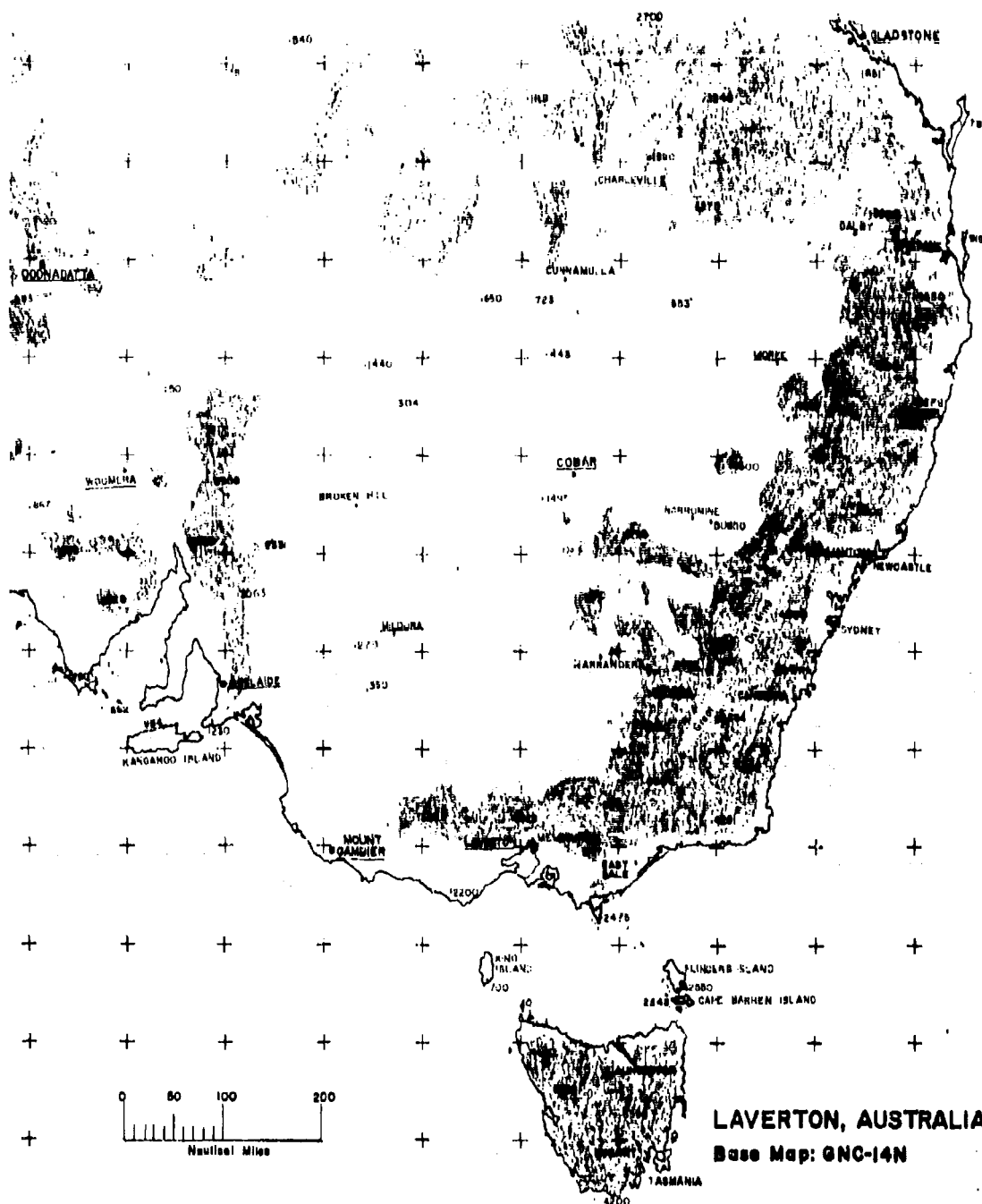
There was little meteorological change from the previous day. A jet stream was flowing across North Island with maximum speeds of 70 to 75 knots at 30,000 feet. Lee waves were again considered likely.

Pilot Report.

No significant turbulence was encountered in the 54,000 to 66,000 feet altitude range. Photographs show clear skies below over South Island, scattered to broken alto-cumulus in parallel rows over the mountains of North Island and off the north coast, and mostly clear along the east side of both islands.

Appendix IX





Laverton RAAF, Australia, Operational Area Map



## Appendix LX

Test 99  
19 July 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

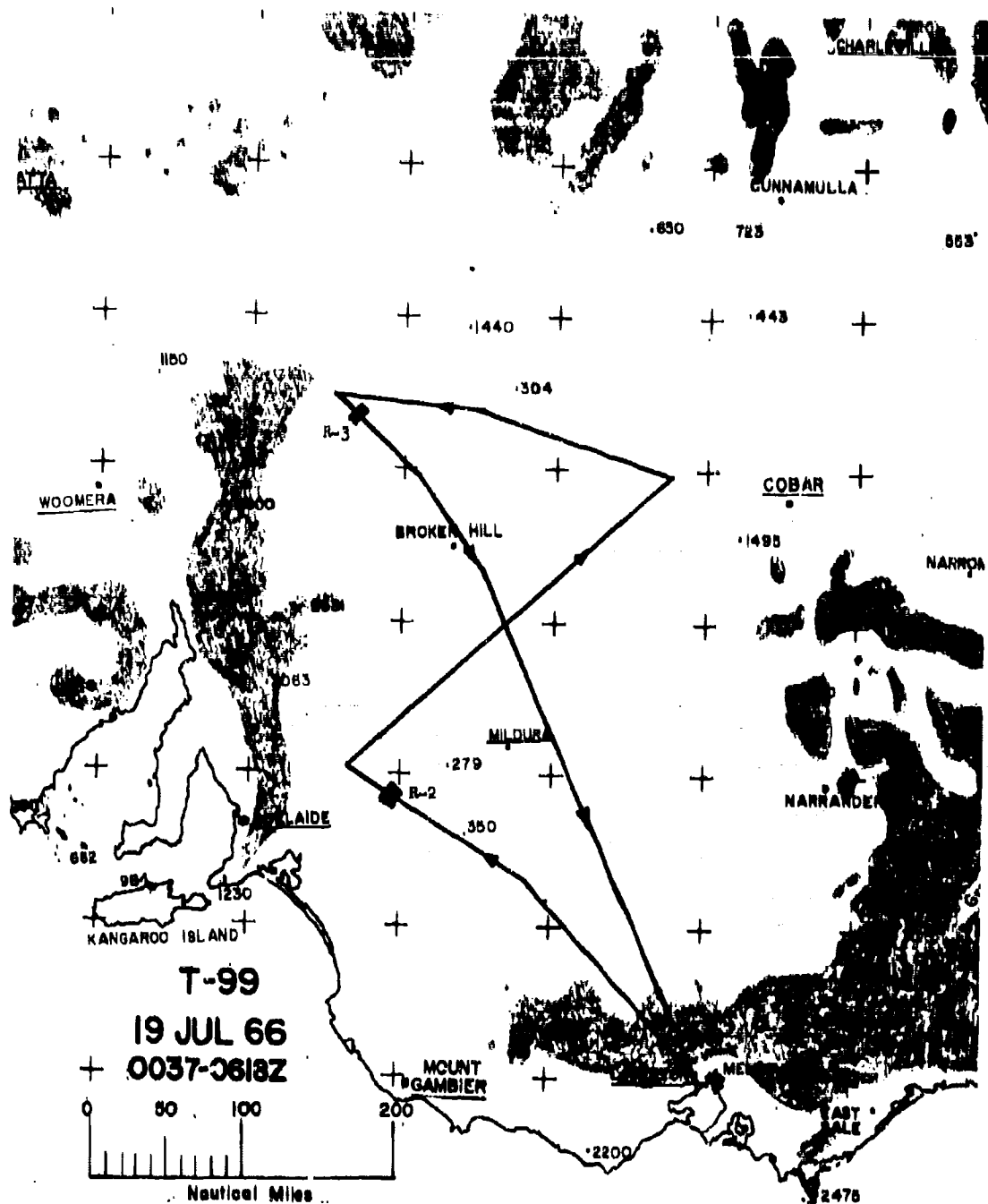
#### Meteorological Summary.

A jet stream traversed the flight area extending from Adelaide and Woomera eastward to the coast. Maximum speeds were 160 knots at 40,000 feet in the Woomera area. Winds decreased rapidly with altitudes to less than 50 knots at 55,000 feet.

#### Pilot Report.

The pilot reported only a few light nibbles of turbulence, mostly on the leg to the northeast of Adelaide. Cloud photographs show mountain waves below to the west of the flight track near Laverton. Other photographs show considerable cumulo-form clouds below with some cirrus. Many of the clouds display a streakiness which is characteristic of a jet stream.

Appendix IX



## Appendix IX

Test 100  
21 July 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

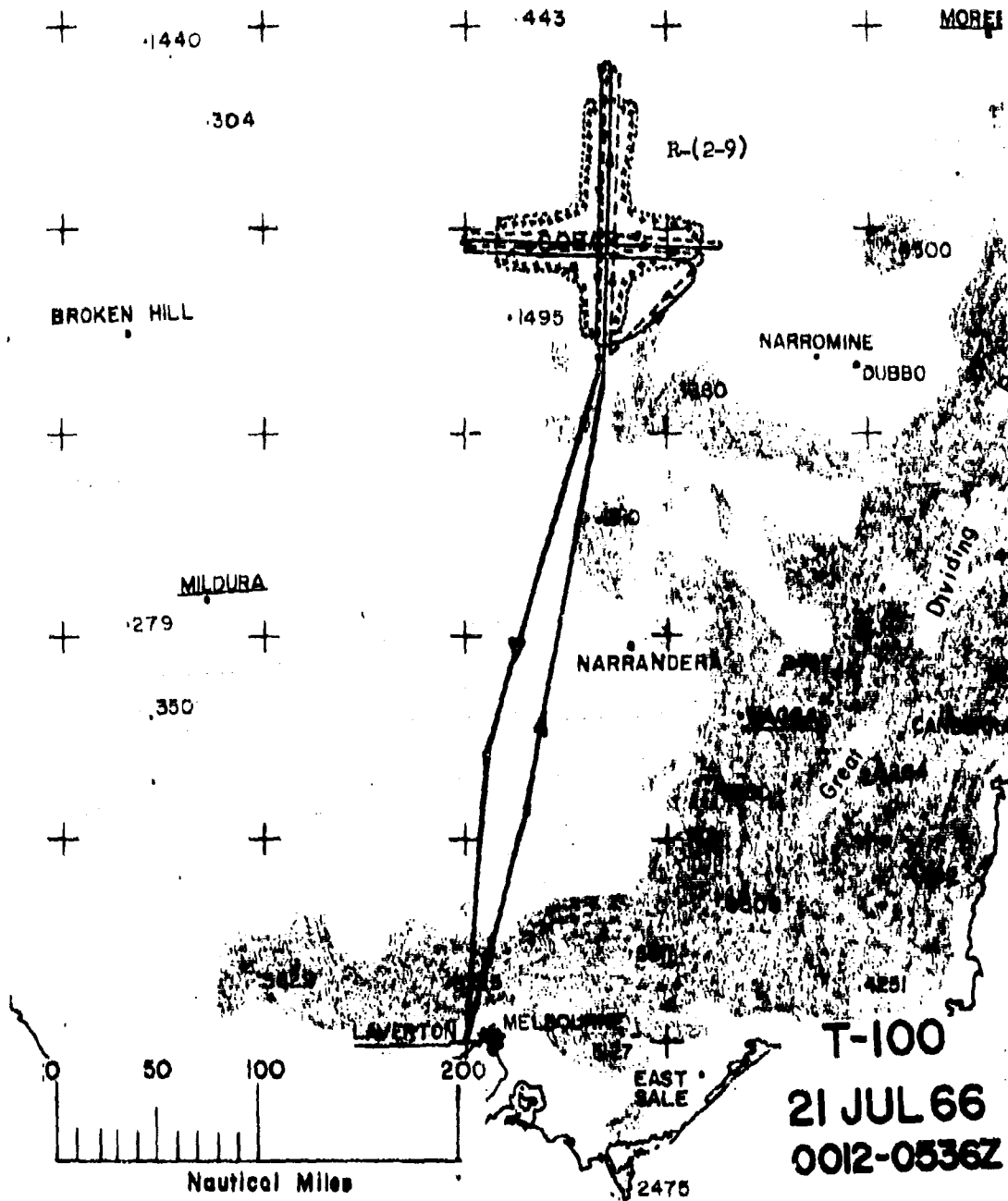
#### Meteorological Summary.

A jet stream axis extended along a line from approximately Woomera to Brisbane with maximum speed of 150 knots at 35,000 feet. Turbulence was predicted from Charleville and on to the north of the 200 mb jet due to low Richardson number.

#### Pilot Report.

There was considerable light to moderate turbulence in the Gobar area at 50,000 to 54,000 feet but no significant turbulence enroute from or on return to Laverton. Photographs show mostly cloudless skies beneath in the Gobar area except for a few tufts of cumulo-form clouds which occurred in parallel rolls.

Appendix IX



## Appendix IX

Test 101  
26 July 1966  
Laverton, Australia

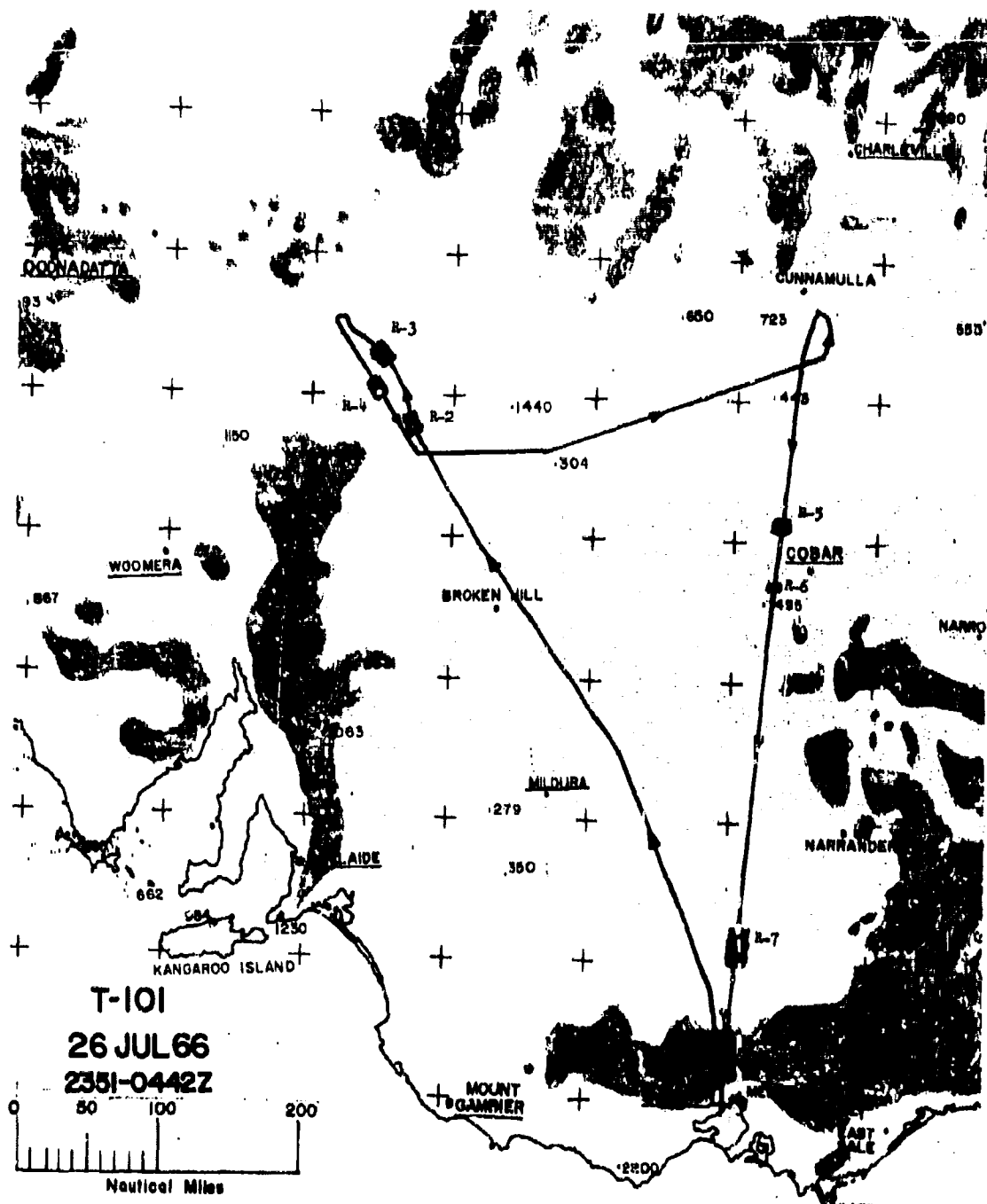
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A jet stream axis extended along an east-west line from Woomera to Coffs Harbor with maximum speeds of 150 knots at 35,000 feet. Turbulence was predicted in the area to the north of the 200 mb jet axis based on low Richardson numbers at 53,000 feet.

#### Pilot Report.

There was light to moderate turbulence at 53,000 feet on climbout. It was fairly consistent at 0.2 to 0.3g. There was some turbulence in the layer 53,000 to 58,000 feet. Photographs of clouds over mountains northwest of Laverton show wave patterns. Short wave patterns also appear in photographs of jet stream cirrus near Broken Hill. However, no turbulence was encountered at flight altitudes over the jet stream and cirrus. Turbulence was again encountered on the return flight at 56,000 to 58,000 feet beginning about 270 miles north of Laverton. Some extended as low as 53,000 feet. Photographs show only scattered to broken cumulo-form clouds beneath.



## Appendix IX

Test 102  
28 July 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

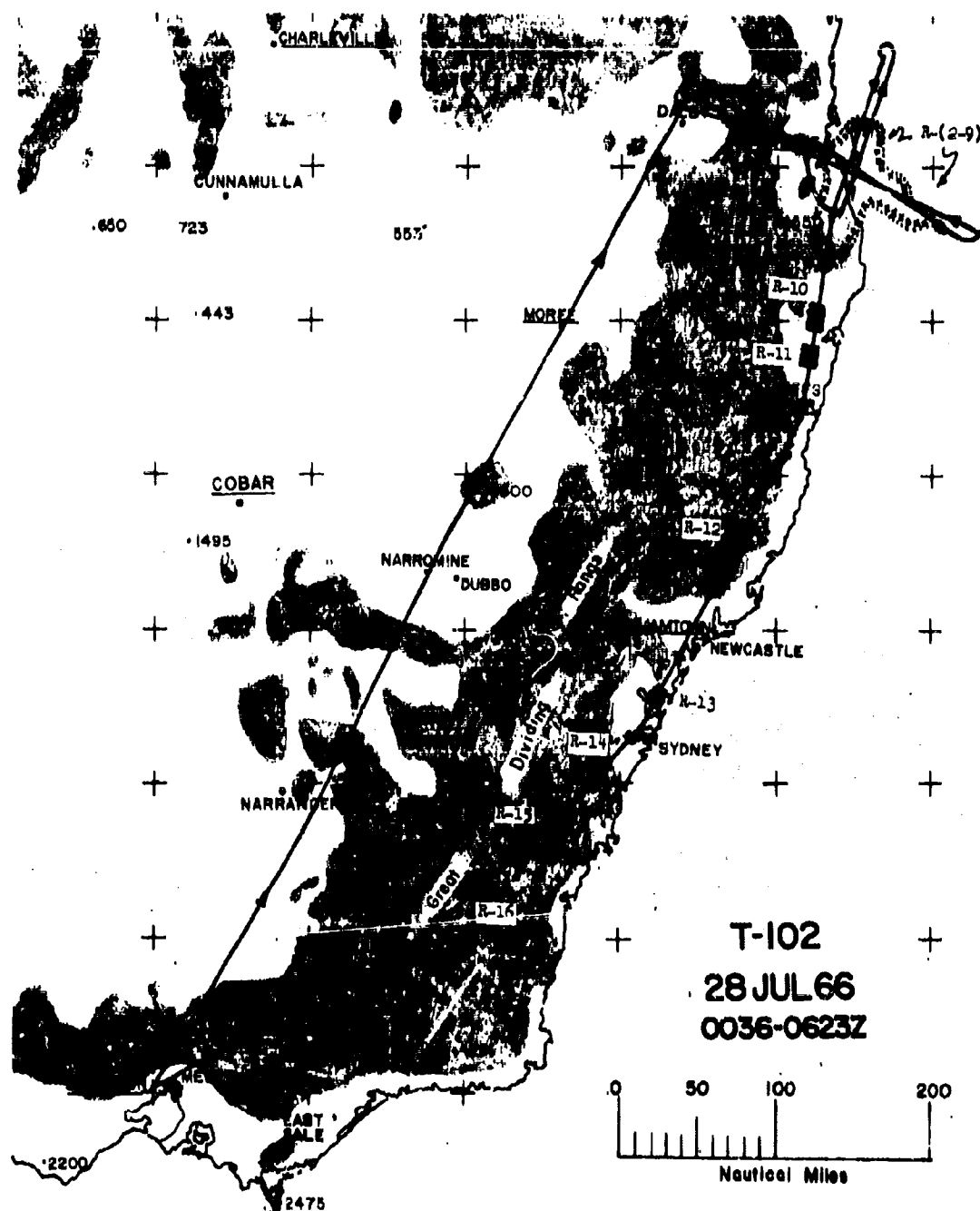
#### Meteorological Summary.

A jet stream was oriented WNW-ESE across Central Australia; maximum winds 170 knots at 36,000 feet Moree-Brisbane area. Turbulence was predicted for this area based on calculated low Richardson numbers. Tropopause sloped upward from 29,000 feet on south coast to 48,000 feet in the Brisbane area.

#### Pilot Report.

A few nibbles of turbulence were observed on climbout at 53,000 to 60,000 feet. Over Brisbane, the aircraft ran into a "wall of turbulence" at 60,500 feet, really rough for 15 minutes but as smooth as glass about 70 miles offshore. It was rough over Brisbane each time the aircraft passed over while flying the pattern. Light to moderate turbulence was encountered to the lee of mountains while flying southward back to Laverton. Turbulence extended from 58,500 feet to 62,500 feet. Just south of Sydney, the pilot observed a strange cloud formation which is just barely discernable in a photograph. It appears to be above the aircraft which was flying at 66,000 feet and experiencing light to moderate turbulence. Another photograph shows wave cloud formations at lower altitudes over the mountains in the Sydney area. There were no clouds in the Brisbane area where the pilot reported the turbulence was so bad that he hesitated and nearly decided against completing the flight pattern.

Appendix IX





## Appendix IX

Test 103  
29 July 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

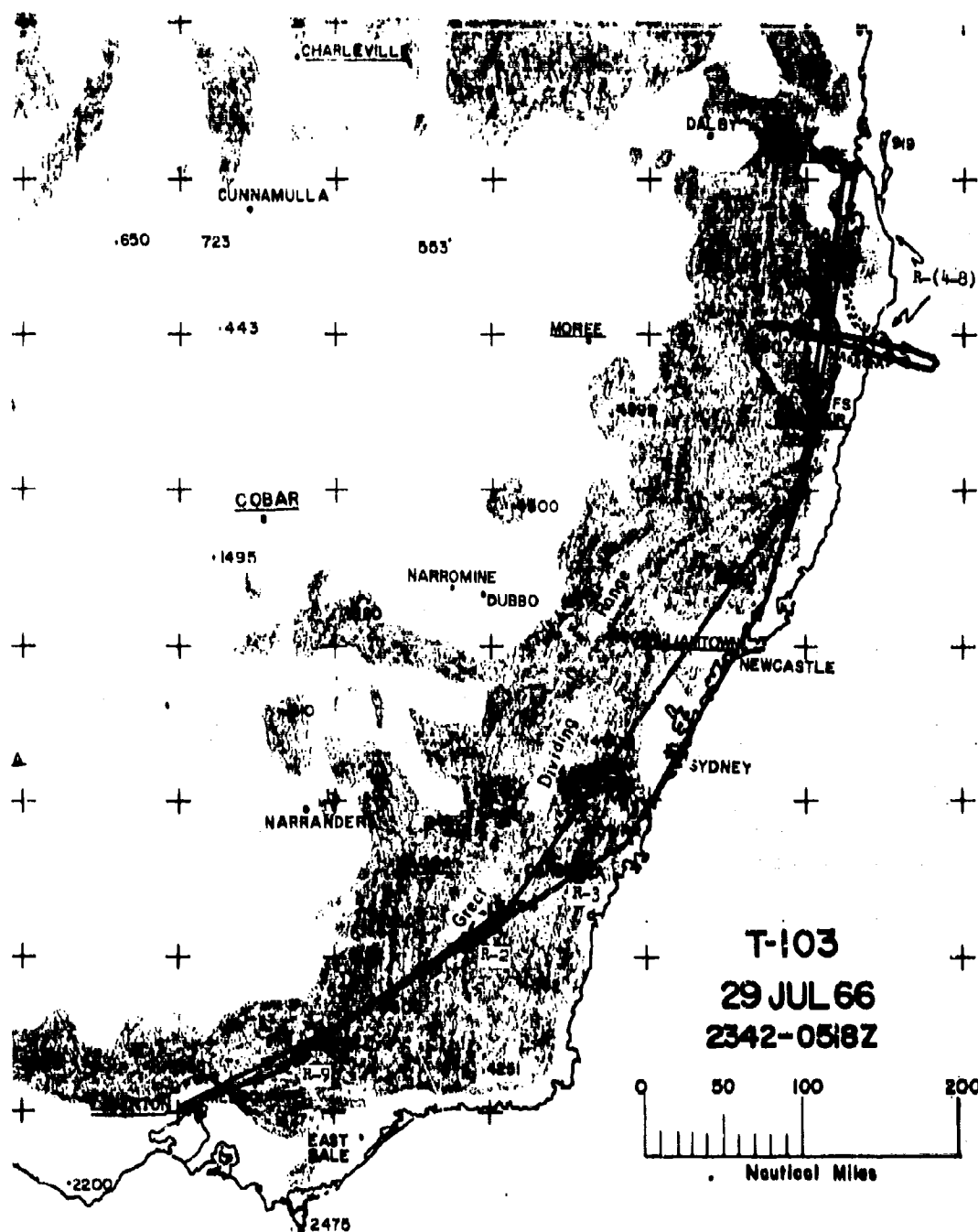
#### Meteorological Summary.

There was a deep low pressure area over the Tasman Sea at sea level. A jet stream was oriented WNW-ESE with its axis along a line from Cobar to Williamstown to Lord Howe Island. Maximum speeds were nearly 200 knots along the coast at 35,000 to 40,000 feet. Turbulence was predicted in the Brisbane area north of the jet stream where the Richardson number was low.

#### Pilot Report.

Spotty light turbulence was encountered on the climbout at 36,000 to 41,000 feet, 51,500 to 55,000 feet, 60,000 feet and at 62,500 feet. None was continuous. Photographs show broken cumulo-form clouds over the mountains below. Near Coffs Harbor, continuous moderate turbulence was encountered suddenly at 59,000 feet. Some was "real bad." It extended northward nearly to Brisbane. In the east-west direction, it was smooth west of the mountains and at seven miles off shore. The pilot remarked that it was much rougher heading west over the mountains compared to travelling eastward. He classified the turbulence as moderate while travelling westward, and light to moderate on the east bound flight. The vertical depth of the turbulence zone extended from 57,500 to 60,000 feet. The photographs show no clouds off shore and cumulo-form clouds over the mountains. On the return trip, no turbulence was encountered up to 67,000 feet along the coast. Some light to moderate patchy turbulence was found at 63,000 feet over the mountains northeast of Melbourne.

Appendix IX



## Appendix IX

Test 104  
2 Aug. 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

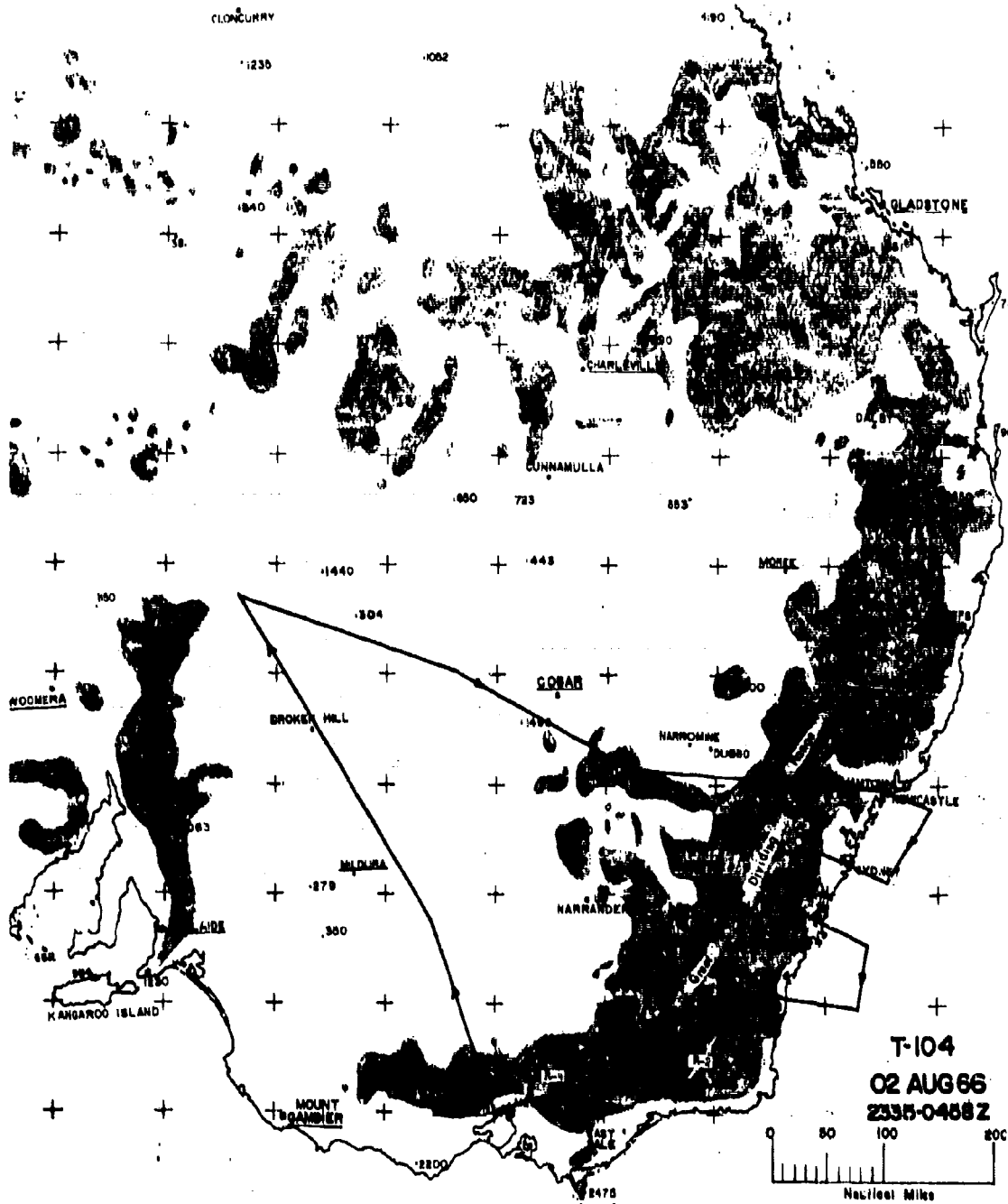
#### Meteorological Summary.

A low pressure area at the surface was centered near coordinates (420 nmi S, 240 nmi W), and a high pressure cell was located just south of Brisbane. A jet stream oriented NW-SE affected all of southeast Australia with maximum speeds around 125 knots from 30,000 to 40,000 feet. The most likely area for turbulence was forecast on the north side of the jet from Woomera, where the Richardson number was low, to Williamstown on the coast where lee waves were considered possible.

#### Pilot Report.

Practically no turbulence was found over most of the route except over the mountains north and east of Melbourne. It was clear beneath along most of route except for some cumulo-form and cirrus clouds over the mountains and off the coast south of Sydney. A few ripples of light turbulence were encountered on the lee side of the mountains in the Sydney area. There was quite a bit of turbulence over the mountains northeast of Melbourne, including six to seven minutes of turbulence approaching moderate intensity at 58,500 feet. A little light turbulence was encountered 35 to 40 miles offshore in the area south of Sydney and east of Canberra.

Appendix IX



T-104  
02 AUG 66  
2335-0458Z

## Appendix IX

Test 105  
3 Aug. 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

#### Meteorological Summary.

A high pressure area at the surface was centered over the Great Australian Bight. A jet stream oriented NW-SE flowed across southeast Australia with maximum winds of 160 knots at 35,000 feet over Wagga. Prospects for turbulence were not considered to be especially favorable, and only light turbulence was predicted.

#### Pilot Report.

Light turbulence was encountered on the lee side of mountains northeast of Melbourne at 58,000 feet. The sky was clear. There was practically no turbulence enroute up the coast. Photographs show solid cirrus over the mountains near Canberra and broken streaky cirrus in Sydney area indicating possible slight wave motion at lower altitudes. Light spotty turbulence was encountered near Coffs Harbor at 55,000 feet. Spotty light turbulence continued off and on - not more than two to three minutes at a time, while travelling west across the mountains and southward to a point about 100 miles north of Laverton. On the southern portion, the narrow vertical zone of turbulence descended to 51,500 feet. The pilot noted that there was no significant difference in the intensity of the turbulence while flying north-south as compared with east-west. He did not fly a pattern as all turbulence encountered was too light and spotty. Broken cirrus and cumulo-form clouds were present over the westbound and southbound portions of the route.

T-105  
03 AUG 66  
2332-0405Z

0 50 100 200  
Nautical Miles

## Appendix IX

Test 106  
5 Aug. 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

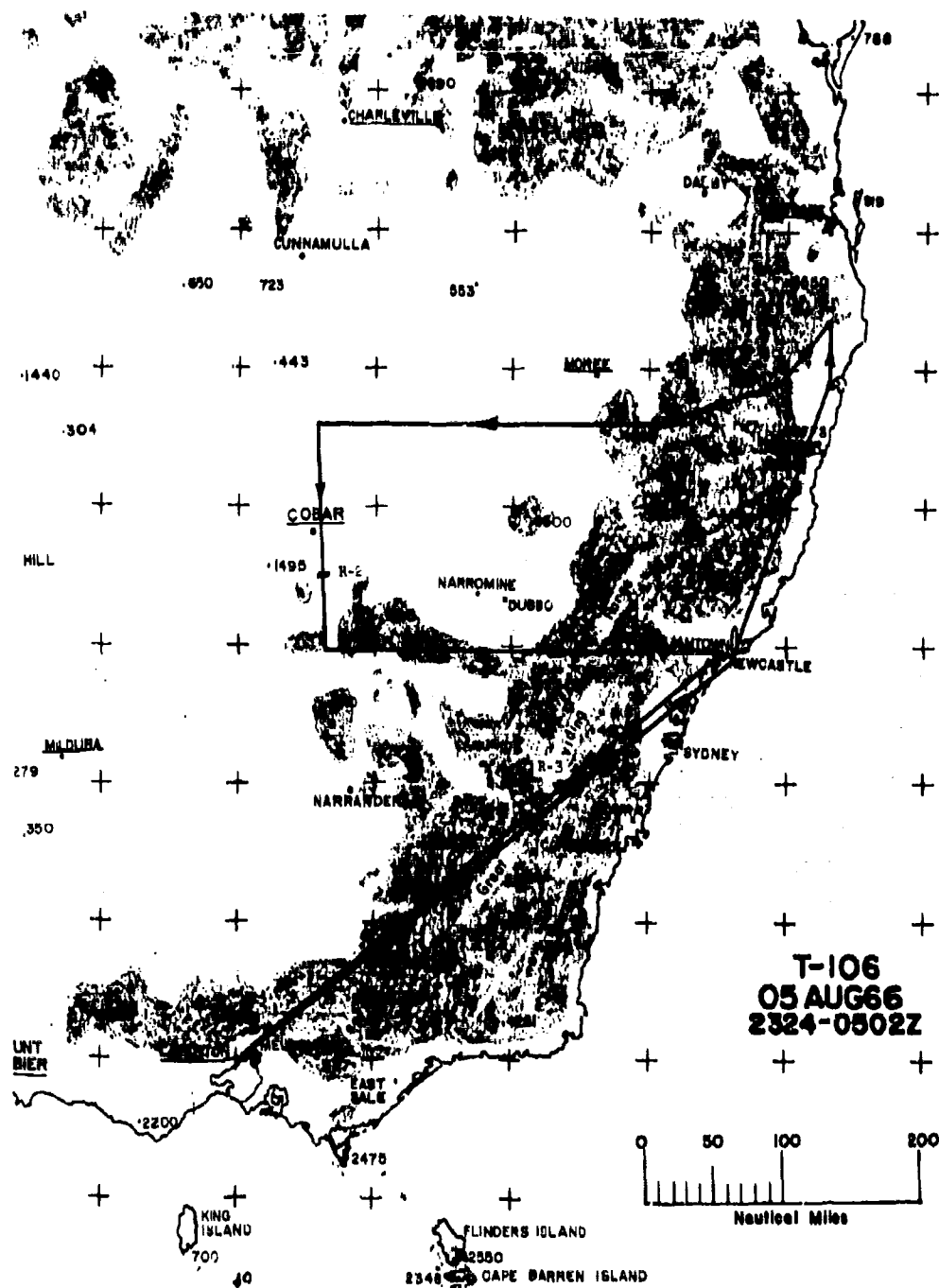
#### Meteorological Summary.

A large surface anticyclone was centered south of Australia. The jet stream was intensifying in the Cobar-Williamstown area with the axis just to the north of these stations. Tropopause sloped upward from 30,000 feet in the south to 45,000 feet at Brisbane. Prospects for turbulence were predicted to be favorable to the north of the jet axis in the Moree-Brisbane areas where the Richardson numbers were lowest. Maximum wind speed was 170 knots at 45,000 feet at Williamstown.

#### Pilot Report.

Only light patchy turbulence was reported throughout the entire flight. The first was encountered over the mountains southwest of Sydney at 51,500 feet. East of the mountains, it was mostly clear with only a few cumulo-form clouds which were mostly off shore. The pilot noted a distinct haze layer near Sydney on the northbound leg but on the return flight, two distinct haze layers were observed. No haze was discernible in the Brisbane area. Cirrus-type clouds over the mountains west of Brisbane indicated wave motion at lower elevations. Most of the turbulence was experienced at 56,000 to 57,000 feet. None could be found above to 64,000 feet.

## Appendix IX





## Appendix IX

Test 107  
8 Aug. 1966  
Laverton, Australia

### FLIGHT DESCRIPTION

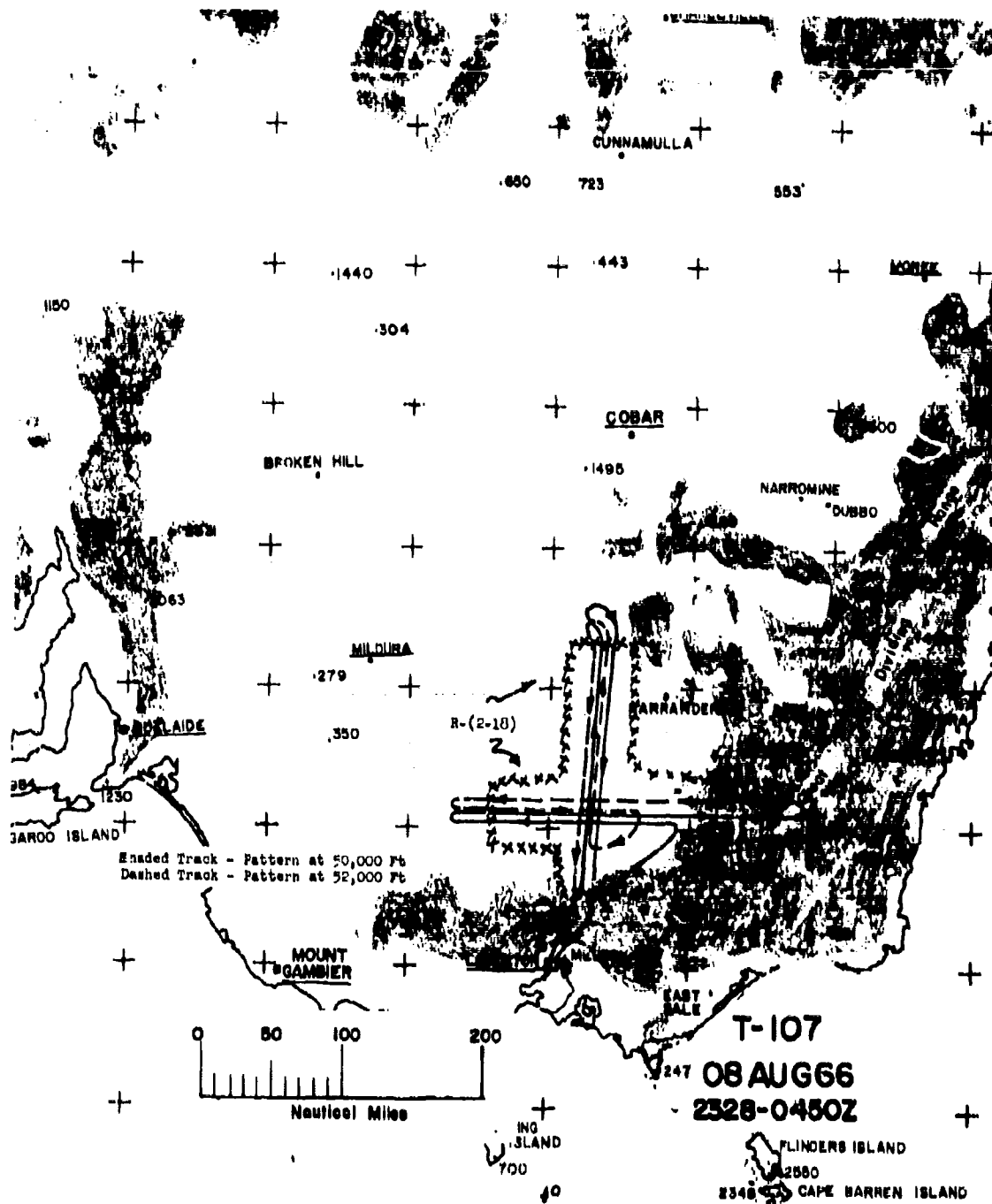
#### Meteorological Summary.

A large surface anticyclone centered over the southeastern tip of Australia affected most of the continent. Gradient of tropopause heights was very slack. Jet stream was relatively weak and oriented WSW-NNE through Charleville. Maximum speeds were about 120 knots at 45,000 feet. A low Richardson number area north of the jet stream due to an unstable layer with large shear was noted in a special 3 a.m. observation at Charleville. The same layer was noted in the regular 9 a.m. observation at Laverton.

#### Pilot Report.

The pilot encountered turbulence at 48,000 feet upon climbout. He climbed to 52,000 feet where turbulence began to die out, so he descended to 50,000 feet to fly a pattern. Moderate turbulence was continuous from about 60 to 230 miles north from Laverton. On the east-west leg, turbulence extended a slightly greater distance but died out over the Snowy mountains at the eastern end. The pilot noted that moderate turbulence was consistent all the time while flying east to west, but turbulence was not as persistent nor as severe when flying west to east. A second pattern was flown at 52,000 feet where the turbulence was only light to moderate and not as continuous. The top of the turbulence layer was about 54,000 feet, and none was found on up to 61,000 feet. Upon returning to Laverton, turbulence ceased about 50 miles to the north. No haze layers were noted, and the weather was clear over the entire area.

# Appendix IX



Appendix IX

Test 108  
9 Aug. 1966  
Laverton, Australia

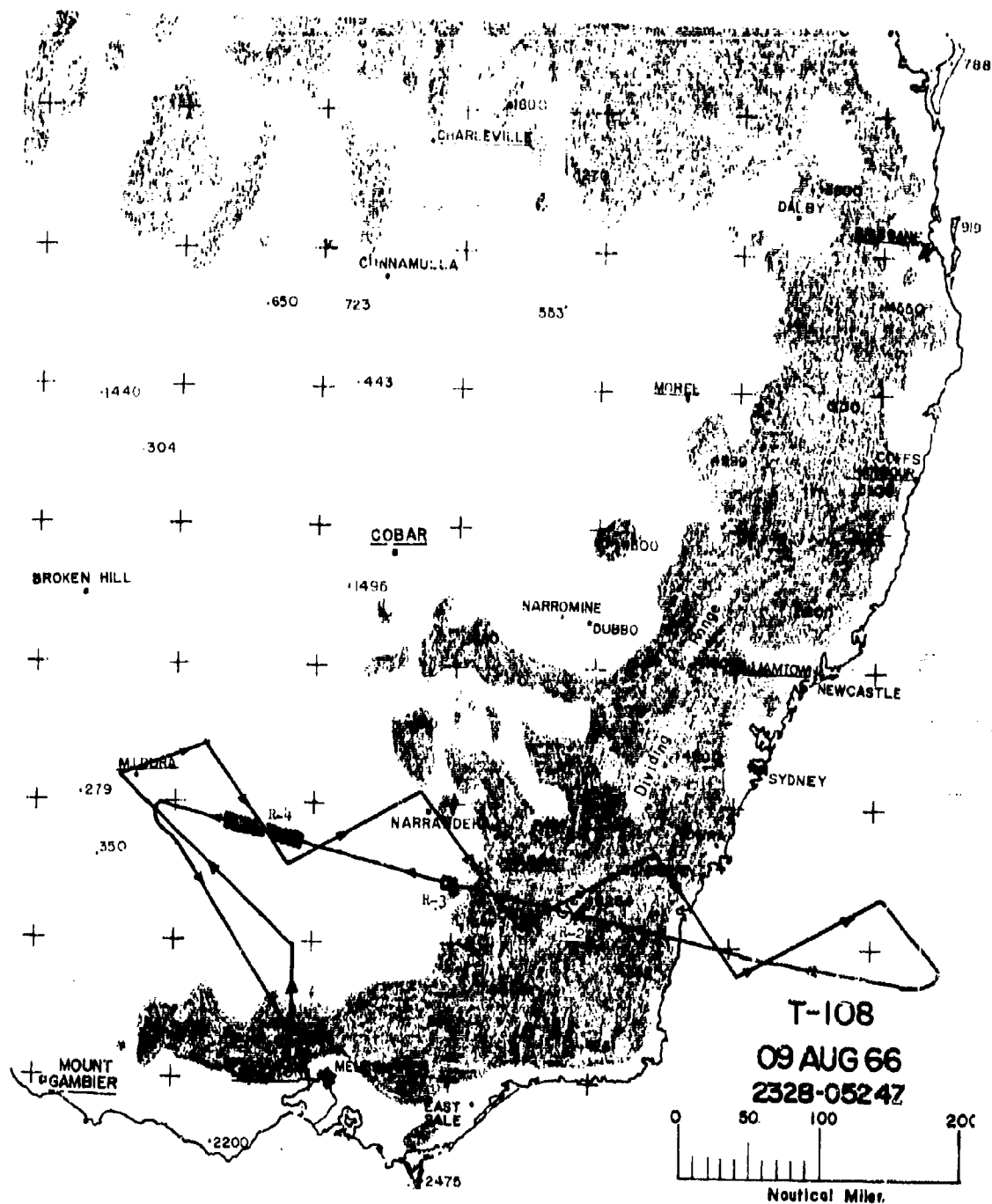
FLIGHT DESCRIPTION

Meteorological Summary.

A low pressure area was centered off the southern coast of Australia at the surface; the axis of the jet stream was parallel to latitude 37°S, with maximum winds 120 knots at 40,000 feet. Low Richardson numbers were calculated for the area to the north of the jet.

Pilot Report.

Light spotty turbulence was encountered on climbout at 50,000 to 53,500 feet. More light spotty turbulence was found at 57,000 to 58,500 feet, but none from there up to 62,000 feet. Most of the turbulence was around 51,000 feet. It was all light and very patchy. Some very light turbulence was found out over the water. None was found while descending from 56,000 feet on the return flight to base. Photographs show nearly solid cirrus and cumulo-form clouds in the entire area west of the mountains, with a haze layer above. It was clear over the mountains. Broken streaky cirrus occurred over the water. The pilot thought the zig-zag pattern flown on this test should have been farther south.



## Appendix IX

Test 109  
11 Aug. 1966  
Laverton, Australia

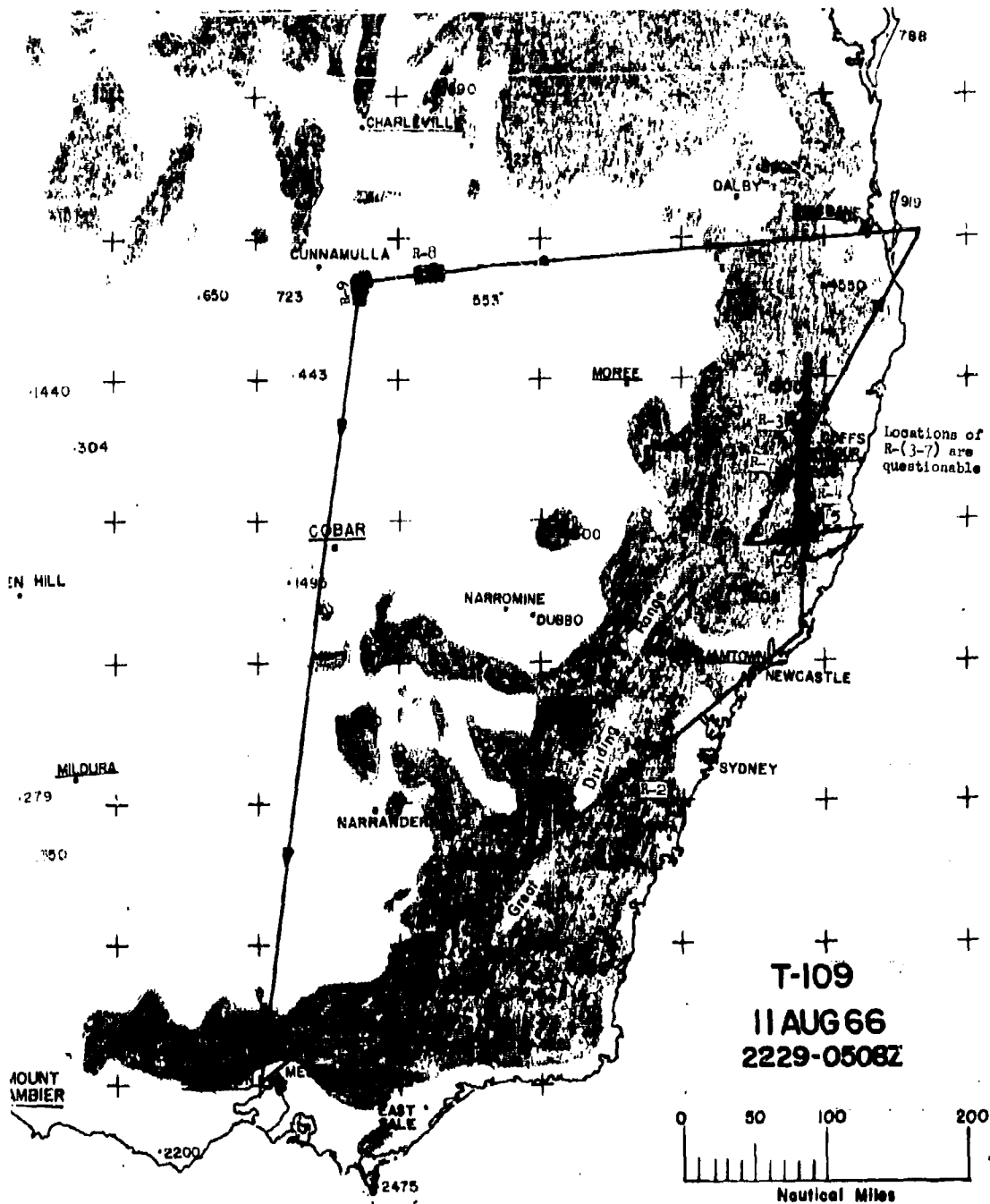
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A low pressure area was centered over Tasmania. A large anticyclone covered most of Australia at the surface. Jet stream axis was oriented NW-SE along a line from Charleville to Coffs Harbor with maximum speeds of 155 knots at 35,000 feet. Richardson numbers were low at selected levels at Williamstown, Brisbane, Charleville, and Cobar. Forecast conditions favorable for turbulence near Cobar.

#### Pilot Report.

On climb-out, no real turbulence but a rolling and pitching motion was experienced at 55,000 feet over the mountains. Photographs show cumulus clouds were building over these mountains. A patch of light turbulence was encountered near Sydney. North of Williamstown, patches of turbulence were encountered at two distinct levels 54,000 to 55,000 feet and 51,000 to 52,000 feet. Some was of moderate intensity. The pilot noted once again that the turbulence was more noticeable when heading west (upwind) as compared to downwind. In addition it was also more noticeable when heading north (upwind) as compared to south. There was intermittent light turbulence at 58,000 feet near Brisbane, and some light turbulence to the west near Cunnamulla. Upon heading southward toward Laverton, no turbulence was encountered between 50,000 and 65,000 feet until the last 120 miles when some very light turbulence was found at 50,000 to 54,500 feet. Scattered to broken cumulus clouds occurred along the entire route.



Appendix IX

Test 113  
24 August 1966  
Edwards AFB, Calif.

FLIGHT DESCRIPTION

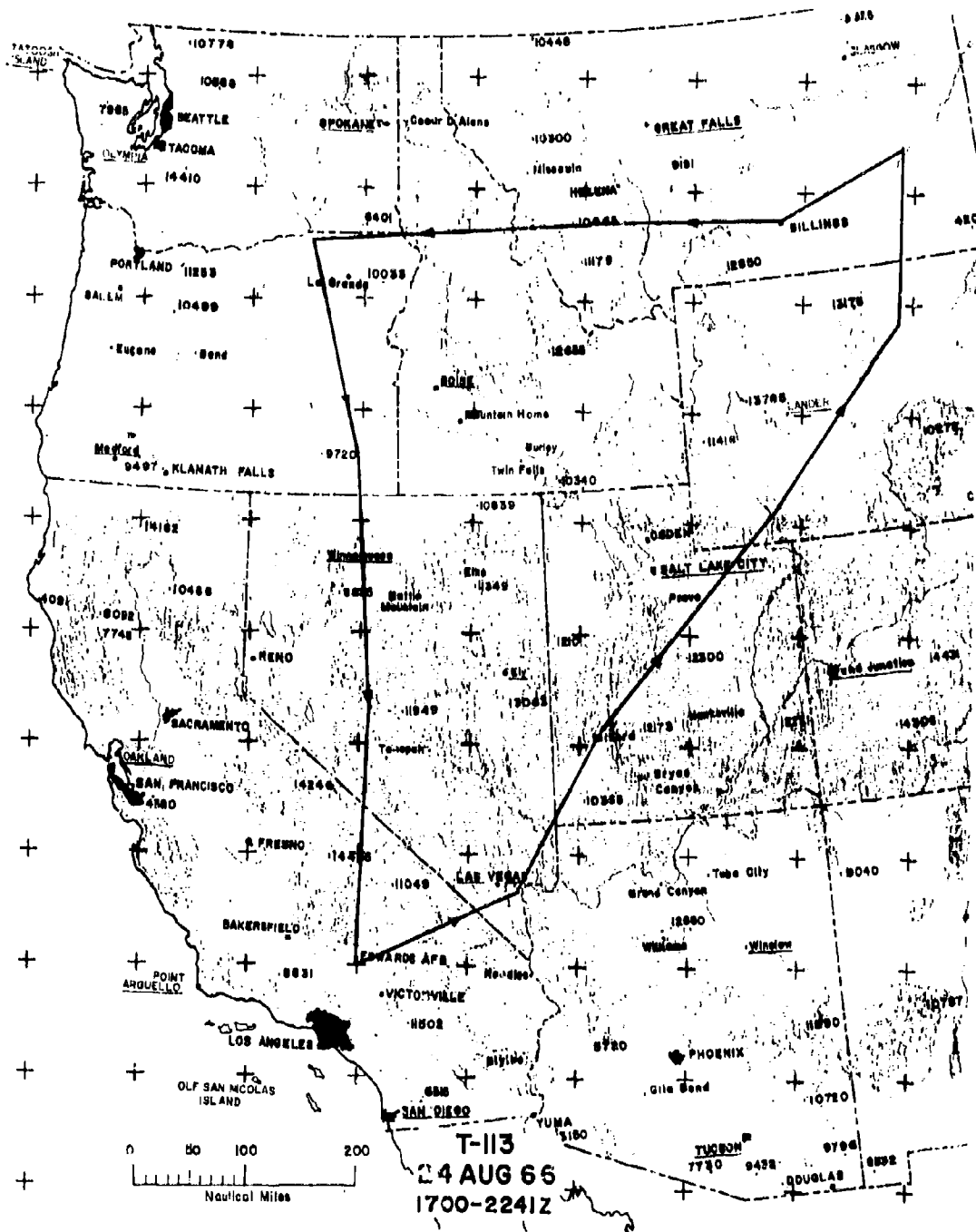
Meteorological Summary.

At the surface, a weak pressure gradient prevailed over the western United States. Pressure was highest over Wyoming and low off the Oregon and Washington Coast. A trough aloft was located off the northwest coast. A closed anticyclonic circulation aloft was accompanied by easterly winds over Montana, Wyoming, and the Dakotas. The tropospheric winds were westerly over the rest of the area. The presence of strong horizontal shear at the level of maximum winds was apparent by the 70 knot westerly winds over Colorado and 60 knot easterly winds over Wyoming at about 40,000 feet. However, wind speeds decreased rapidly at greater heights becoming 25 to 30 knots at 50,000 feet except over Montana where it was nearly calm.

Pilot Report.

No turbulence was found anywhere over the route at altitudes between 50,000 and 65,000 feet. Clouds along the route were scattered cumulus and alto-cumulus.

Appendix IX





## Appendix IX

Test 114  
29 August 1966  
Edwards AFB, Calif.

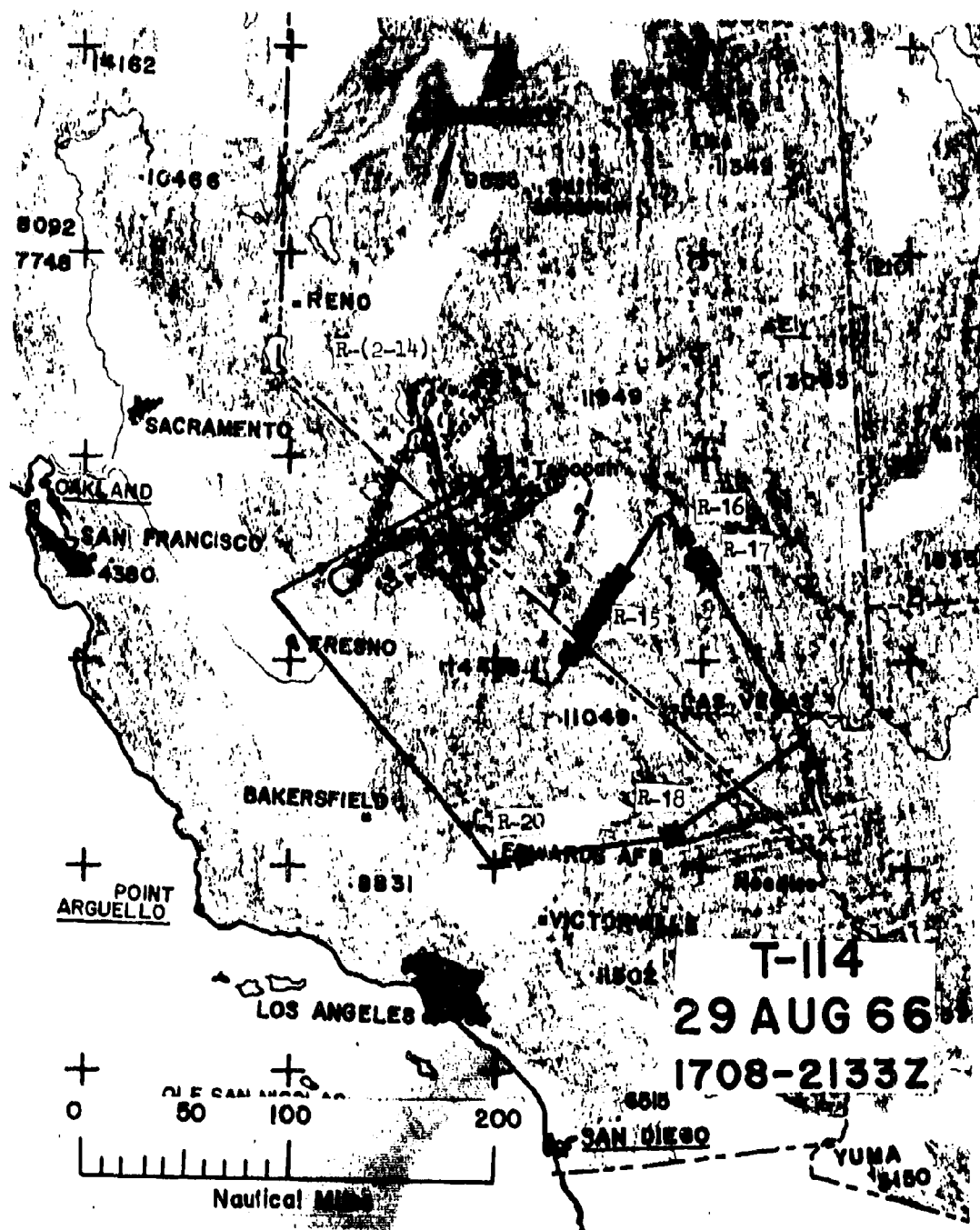
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, a weak trough of low pressure extended from Montana southwestward to southern California. A sharp trough aloft extended from Washington southward through California; a southwesterly jet stream with maximum speeds of 80 knots at 35,000 to 40,000 feet was blowing across the Sierra Nevada. A Sierra Wave was forecast with considerable turbulence to the east of the mountains.

#### Pilot Report.

An extensive area of light to moderate turbulence was found at altitudes of 55,500 to 57,500 feet east of the Sierras in the Bishop, California, and Tonopah, Nevada areas. The aircraft was in turbulence for almost an hour and a half while flying search patterns through the area. There were scattered low cumulus throughout the area and bands of alto-cumulus over the mountains with higher wisps and bands of lenticular cirrus displaying distinct wave patterns.



## Appendix IX

Test 115  
30 August 1966  
Edwards AFB, Calif.

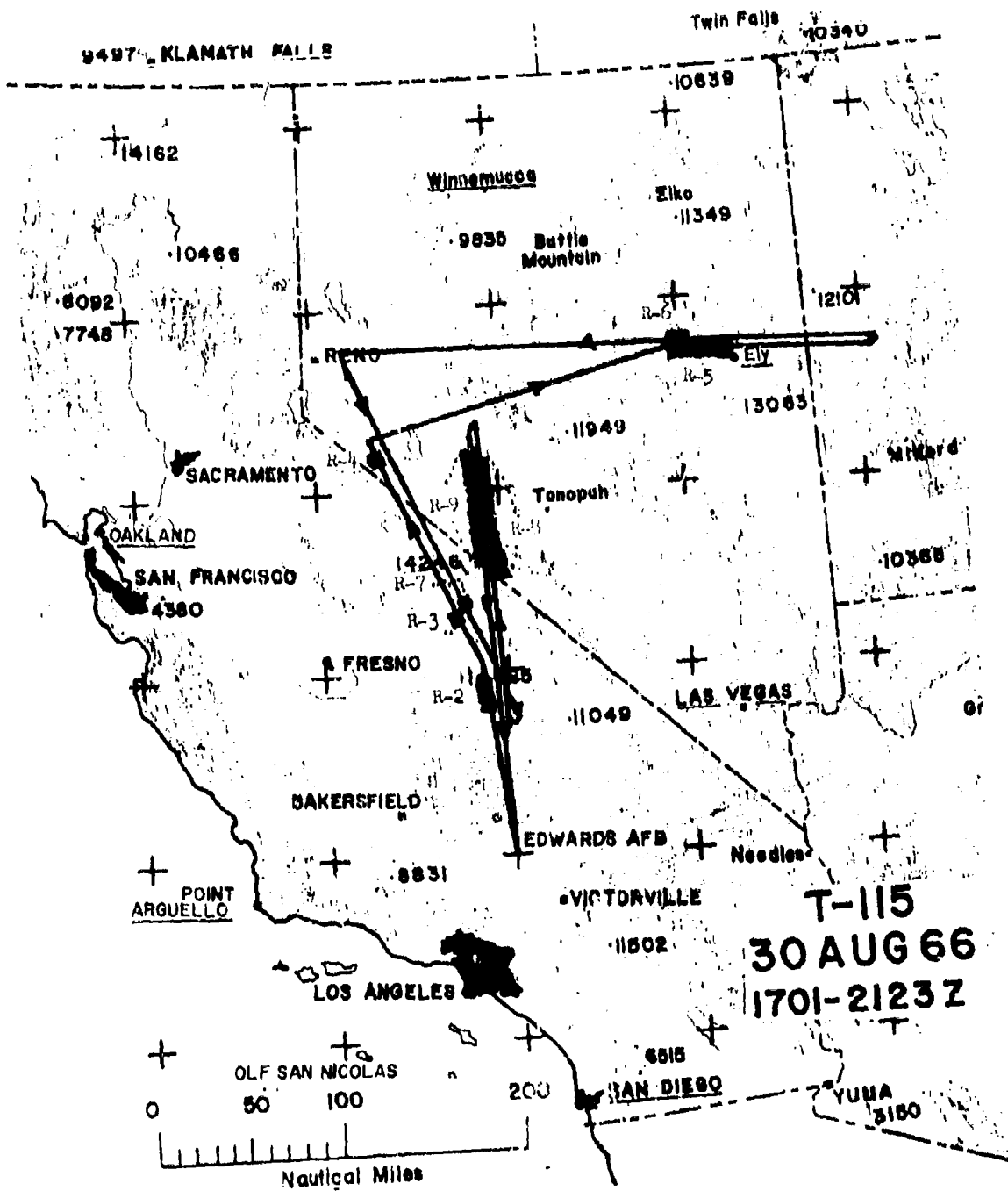
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, a weak trough of low pressure extended from North Dakota southwestward across Wyoming to southern Nevada. A trough aloft extended from Washington southward through California. A southwesterly jet stream at 35,000 to 40,000 feet streamed northeastward from southern California to Montana; maximum speeds in the jet 70 knots. Light to moderate turbulence was predicted over the Sierras and eastward across Nevada.

#### Pilot Report.

Patches of light turbulence were found at 56,000 to 58,000 feet over the Sierras east of Fresno and Sacramento on the northbound leg and at 62,000 feet east of Fresno more than two hours later on the southbound leg. An area of light turbulence was encountered at 61,000 feet just west of Ely, Nevada, on both the eastbound and westbound legs, and a patch of light turbulence was found at 61,000 feet in west central Utah. It was clear over the southern Sierras and gradually became overcast with strato-cumulus east of Sacramento. There were scattered to broken thin veils of cirrus over the mountains in the Ely area and some small lenticular alto-stratus in western Utah.



## Appendix IX

Test 116  
31 August 1966  
Edwards AFB, Calif.

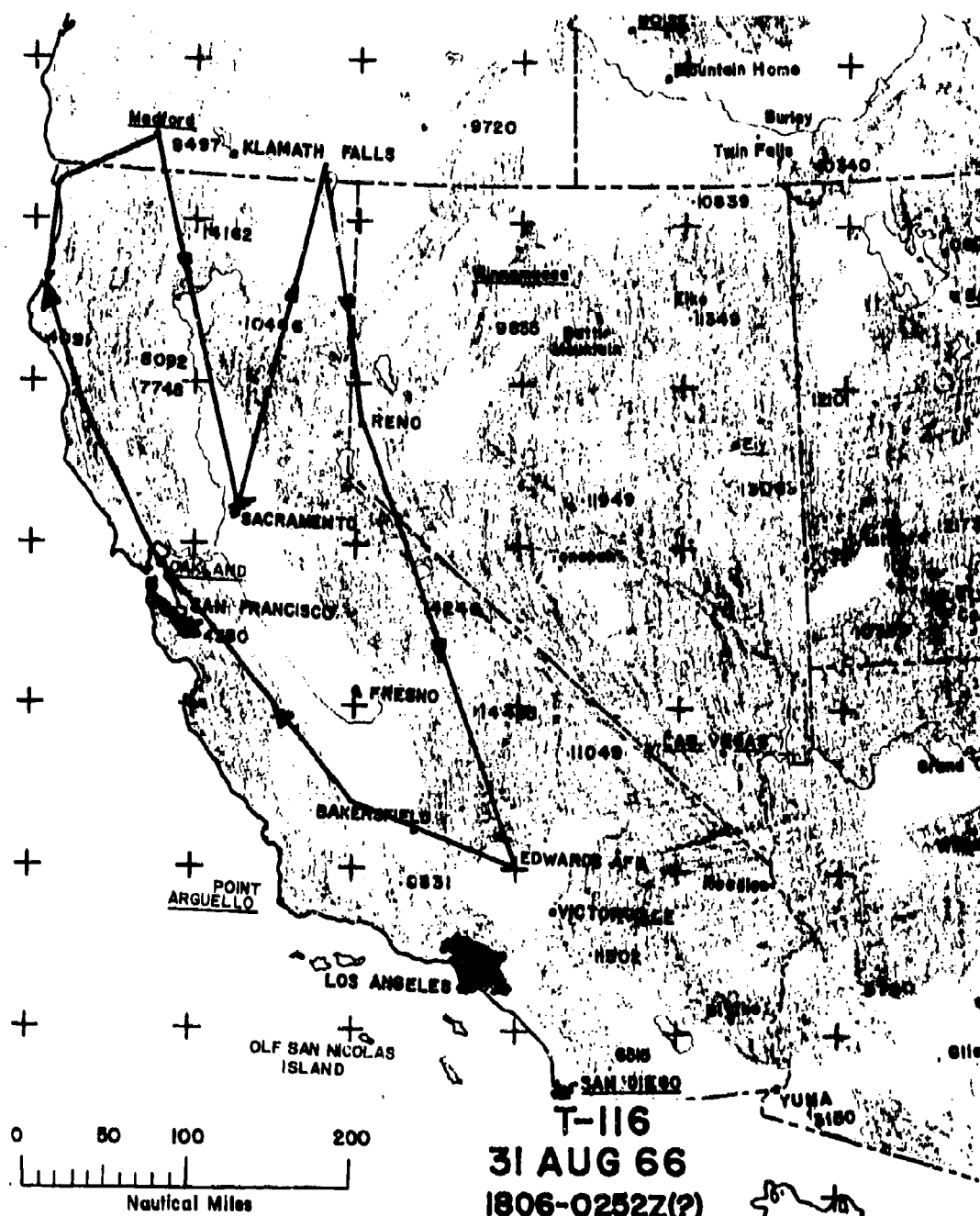
### FLIGHT DESCRIPTION

#### Meteorological Summary.

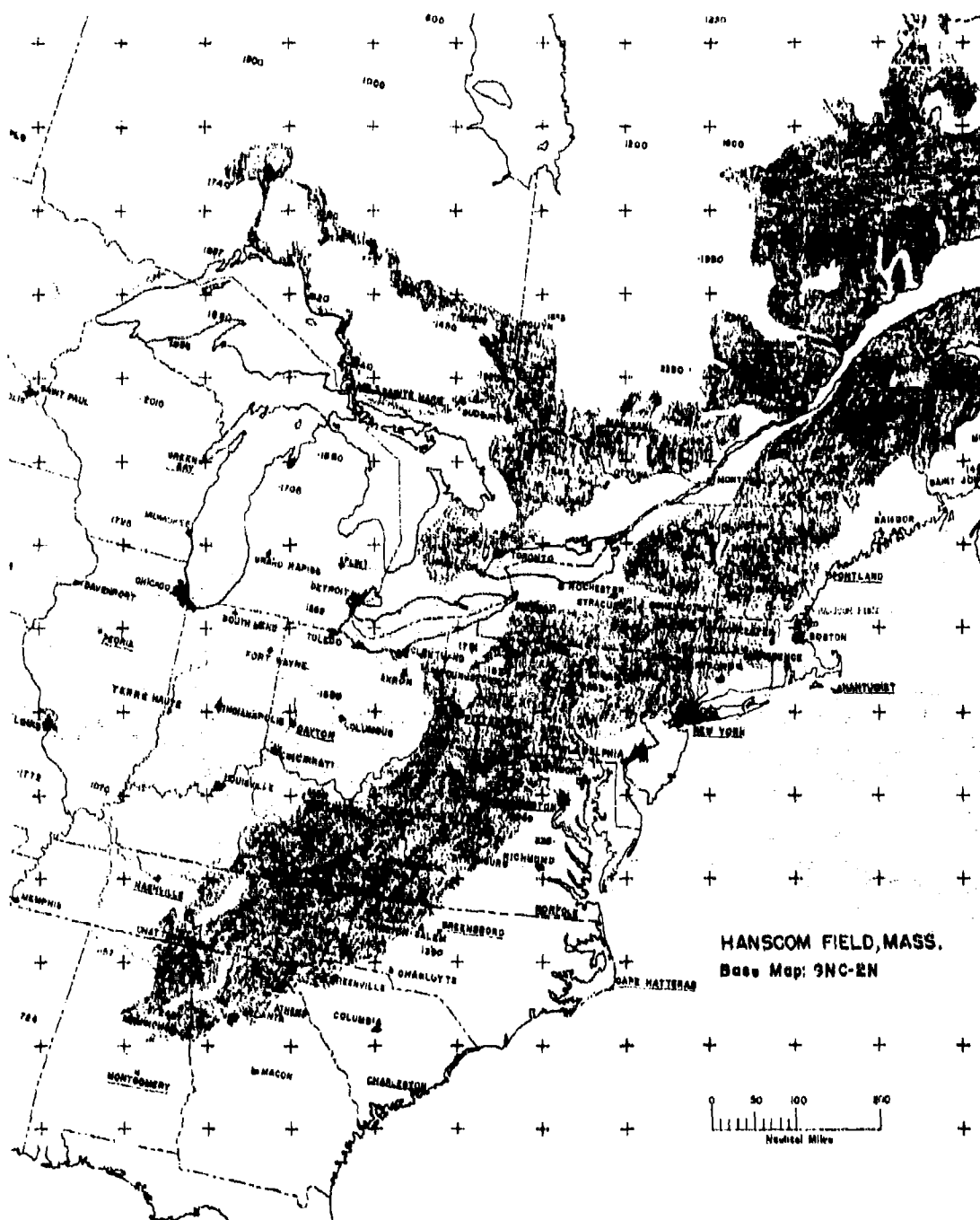
A weak surface pressure gradient occurred over the area with low pressure centered over southern Nevada, and high pressure in the Pacific Northwest. A sharp trough aloft centered in Nevada extended southward to southern California. Maximum winds aloft over California were about 65 knots from the northwest.

#### Pilot Report.

No significant turbulence was noted except for a few nibbles of very light intensity at 50,000 feet between Oakland and Ukiah. It was clear over the coastal mountains with nearly solid stratus along the coast and scattered cumulus over the Sierra Nevada.



# Appendix IX



Hanscom Field, Massachusetts, Operational Area Map

## Appendix IX

Test 121  
21 September 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

#### Meteorological Summary.

A cold front was located along the Atlantic coast with a wave development in the New Jersey area. A second cold front was approaching the western Great Lakes region. A deep trough aloft was situated over the eastern United States with a jet stream at 200 mb; the axis of the jet stream was southwest to northwest; maximum winds were 90 knots at 40,000 feet. Turbulence forecast from Offutt Global Weather Central was as follows:

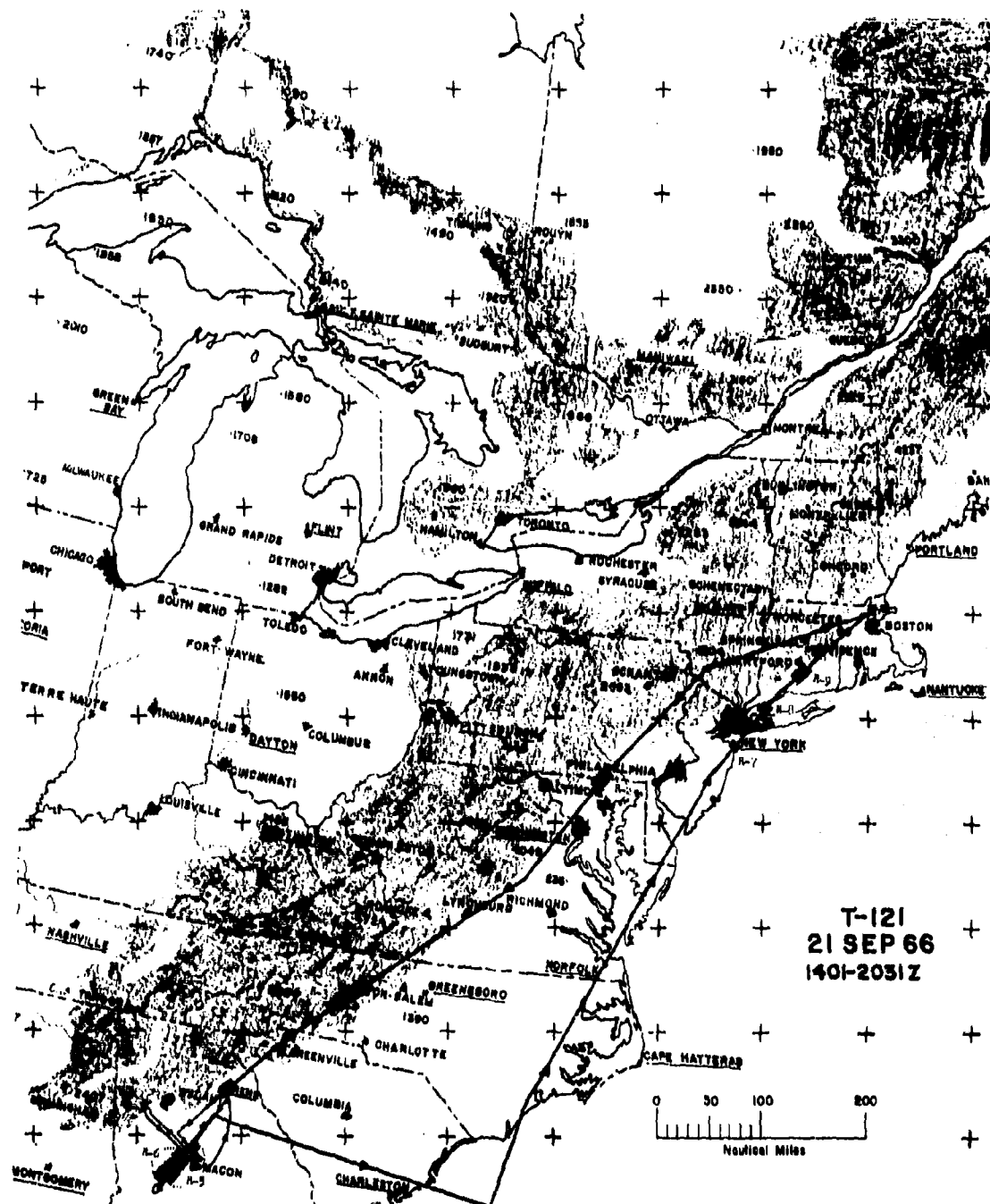
Primary area - Light to moderate northern Georgia and Western Carolinas.

Secondary area - Light to moderate coastal Carolinas, Virginia, Maryland, and adjacent coastal waters.

#### Pilot Report.

A patch of light turbulence was encountered over Wilmington at 51,500 feet. Several patches of light turbulence of 15- to 20-seconds' duration were found at 57,000 feet over Spartanburg, South Carolina. Fairly consistent light turbulence was found in the north Georgia area as forecast and a pattern was flown at 55,000 feet. The plane was in turbulence for a total period of about one and one-half hours. No turbulence was found over the coastal areas on the return leg except over thunderstorms at 53,000 feet in the New York City area. Some of this turbulence was called violent by the pilot. Photographs show nearly solid overcast of cirrus over New York and Pennsylvania with strato-cumulus further south and becoming broken alto-cumulus in the Carolinas. In the turbulence area in Georgia, the alto-cumulus became very flat topped and streaky in appearance with streamers trailing off downwind. Solid cirrus was present off the Carolina coast. Broken cumulus clouds occurred farther north along the coast.





## Appendix IX

Test 122  
26 September 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

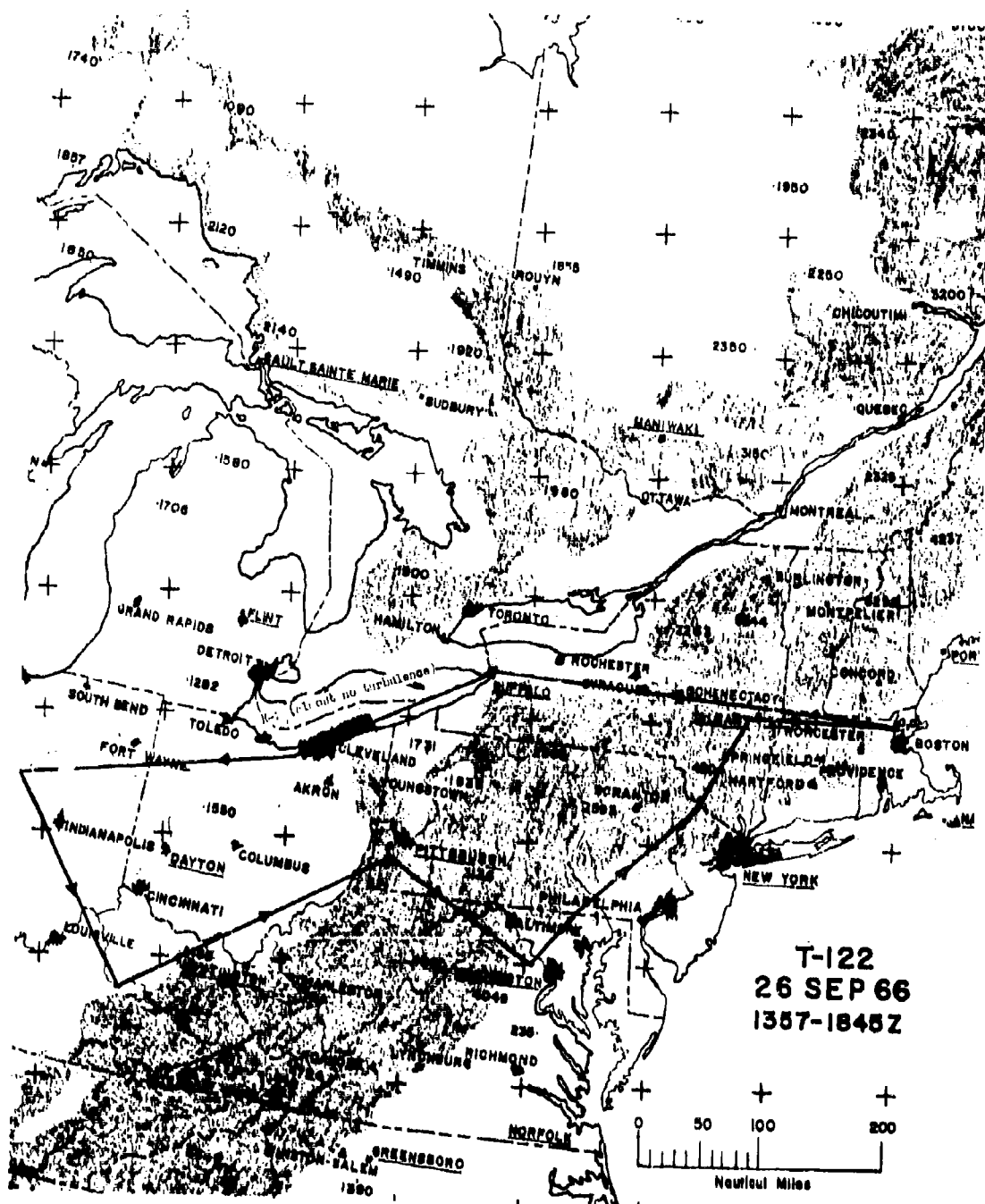
#### Meteorological Summary.

At the surface, a high pressure area covered the northeastern United States accompanied by a minor trough aloft extending southward from Canada, across Lake Erie, to Ohio. The trough was moving eastward toward New York State. A northern jet stream extended from the Great Lakes eastward across New York and Massachusetts while a southern jet stream was oriented west to east from Missouri across West Virginia to the coast. Maximum winds were 95 knots at 35,000 to 40,000 feet. Light to moderate turbulence was forecast for the area of Pennsylvania, Ohio, Indiana, Illinois, Missouri, Tennessee, Kentucky, and Virginia.

#### Pilot Report.

Very light turbulence was encountered between 50,000 and 55,000 feet climbing out between Boston and Albany. Very little was encountered to the west, only a few very light patches at 57,000 feet near Buffalo, and a few ripples in the jet stream between Lafayette, Indiana, and Lexington, Kentucky. Maximum altitude of any turbulence was 62,000 feet. A few ripples of very light turbulence were found at 57,000 feet near Albany on the return flight. In general, most turbulence was found within 100 miles of Albany, and all of it was very light. Photographs show scattered alto-cumulus across New York State with cirrus to the north of the route. Skies were mostly clear from Lake Erie to Indiana; solid cirrus overcast covered the jet stream area over Kentucky and West Virginia. The Washington area was overcast with strato-cumulus, and a solid cirrus overcast with bases at 24,000 and tops at 32,000 feet covered New York and Massachusetts on the return leg.

Appendix IX



## Appendix IX

Test 123  
27 September 1966  
Hanscom Field, Mass.

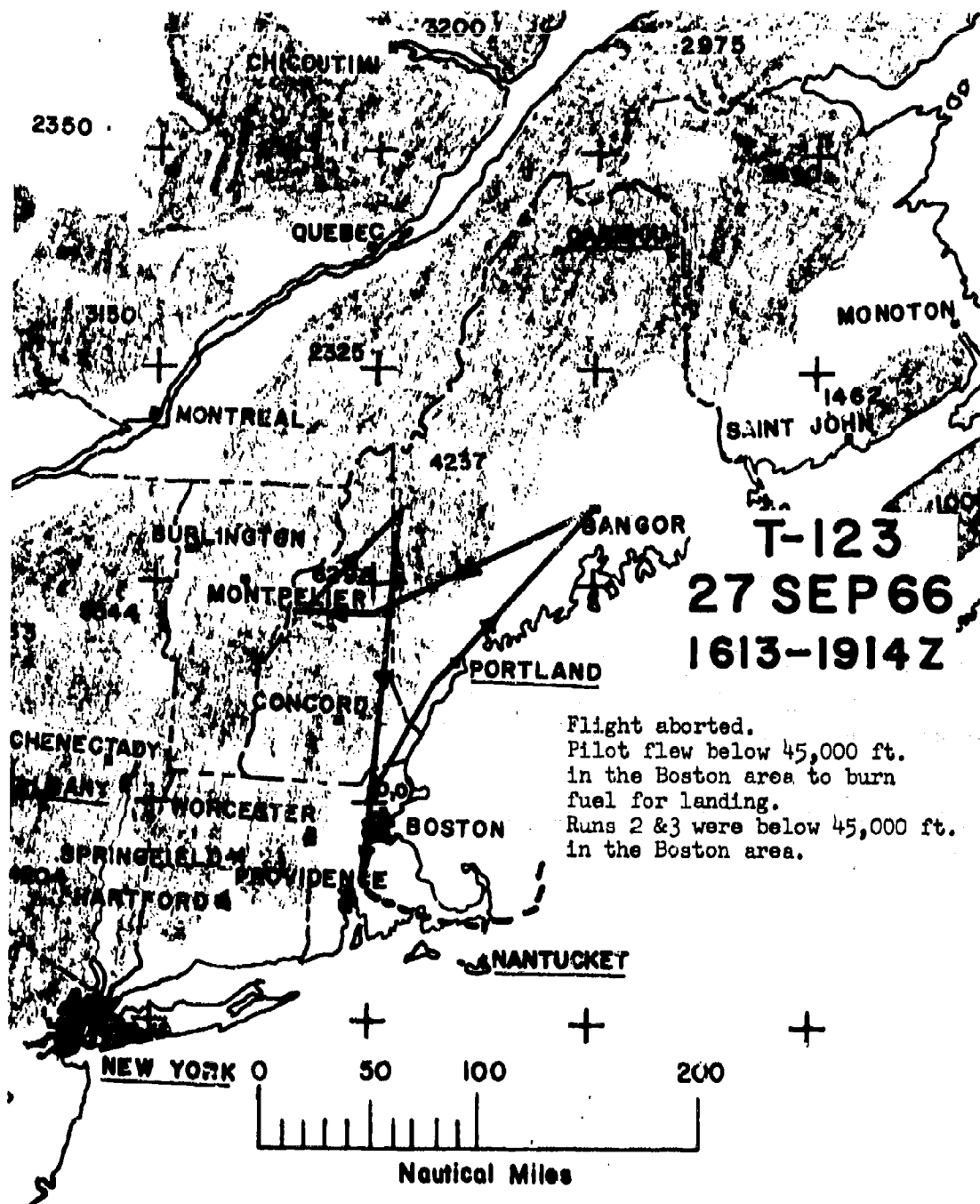
### FLIGHT DESCRIPTION

#### Meteorological Summary.

Low pressure over Eastern Canada was accompanied by a cold front moving eastward across the Great Lakes; a trough of low pressure aloft was situated over the Great Lakes and New England. A jet stream with maximum winds of 100 knots at 40,000 feet was oriented west to east from Nebraska across Illinois, Indiana, Ohio, Pennsylvania and New England. There was very little vertical or horizontal shear, but light turbulence was predicted between 50,000 and 60,000 feet in a rather large area from Bangor, Maine, westward to northern Wisconsin, southward to Arkansas and eastward through Virginia to the coast, thence northward to Bangor.

#### Pilot Report.

A little light turbulence was encountered just south of Bangor, Maine, but it was clear and smooth over the rest of New England. The remaining portion of the flight to the west and south of Boston was conducted at altitudes below 45,000 feet.



## Appendix IX

Test 124  
28 September 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

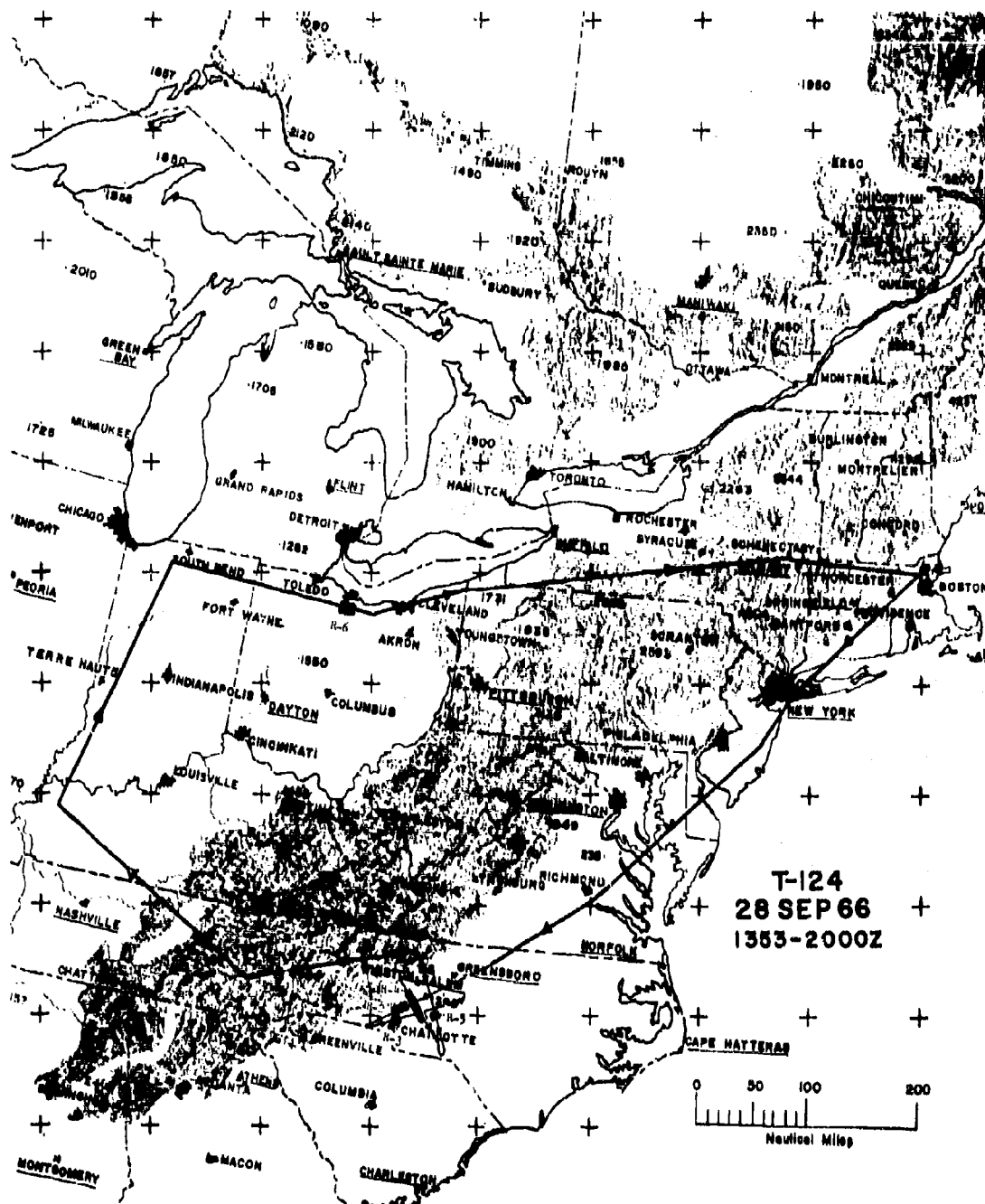
#### Meteorological Summary.

A dissipating cold front was oriented east-west across New York and Massachusetts. Another frontal system accompanied by low pressure extended from Virginia southwestward to the Mississippi Gulf coast. A jet stream aloft from Kansas and Iowa extended eastward across Illinois, Indiana, Ohio, Pennsylvania, and southern New England. Maximum winds in the jet stream were 110 knots at 40,000 feet. The forecast called for light to moderate turbulence in a primary area encompassing Ohio, West Virginia, Kentucky and Tennessee, southern portions of Illinois and Indiana, and northern portions of Arkansas and Mississippi. A secondary area of light turbulence was predicted for the coastal portions of Maryland and Virginia northward to New York and New England.

#### Pilot Report.

Patches of very light turbulence were encountered at altitudes up to 66,000 feet along the entire route from Boston to Greensboro. Between Greensboro and Spartanburg, a good patch of light turbulence was found at 51,000 feet, so a pattern was flown. This patch of turbulence was found to be about 60 miles wide as all legs of the pattern extended out into smooth air. No turbulence was encountered on the leg from Spartanburg to Evansville at altitudes of 56,000 to 65,000 feet. Patches of light turbulence occurred at 58,000 feet between South Bend, Indiana, and Erie, Pennsylvania. A few patches of very light turbulence were found at between 51,000 and 66,000 feet between Erie and Albany. Photographs show a solid cirrus deck below throughout the entire route to Evansville, Indiana where there was scattered to broken alto-cumulus. Mostly broken cumulus and alto-cumulus were observed from there to Albany where the solid cirrus was again encountered.

Appendix IX



## Appendix IX

Test 125  
29 September 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

#### Meteorological Summary.

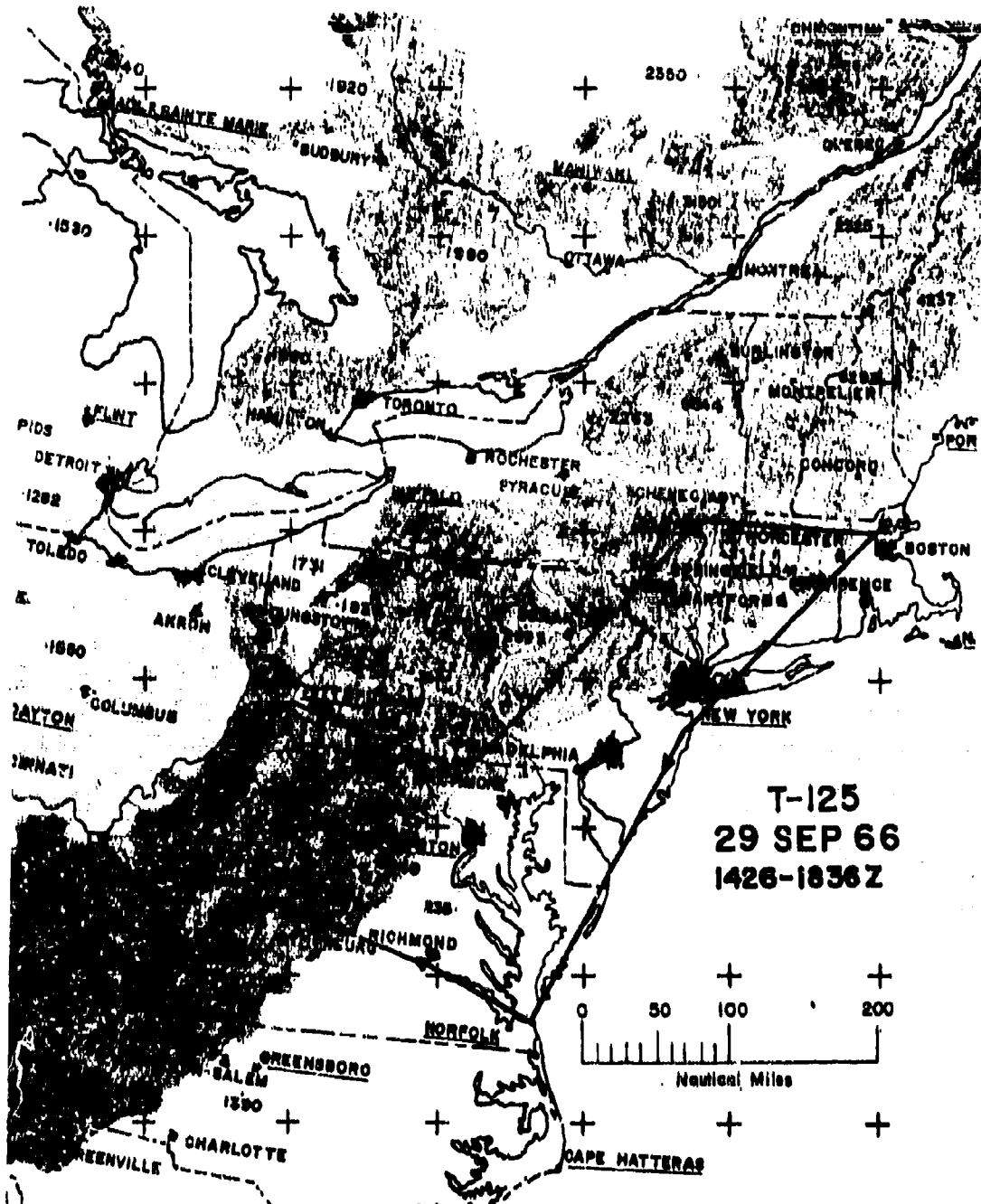
A low pressure area was centered off the Virginia coast with a cold front extending southward along the coast. A second low pressure area was moving eastward across the Great Lakes, and a cold front extended from Ohio southward to Missouri. A strong trough of low pressure aloft at 200 mb extended southward from Hudson Bay across the Great Lakes to northern Alabama. A jet stream was located at 40,000 feet with winds over 100 knots from the Carolinas northward to New York; maximum winds were 125 to 140 knots off the Virginia coast. The forecast called for a primary area of light to moderate turbulence near Salisbury, Maryland, at 60,000 feet due to the combination of strong vertical shear and high wind speeds. A secondary area of light turbulence was forecast for the vicinity of Montgomery, Alabama in an area of strong horizontal shear.

#### Pilot Report.

Only patches of very light turbulence were found in following areas: At 54,000 feet over New York City, in a band 52,000 to 54,000 feet over New Jersey, between 63,000 and 64,000 feet near Norfolk, Virginia (and lasting about 30 seconds during descent) at 56,000 feet over Flatrock, Virginia, at 51,000 feet near Charleston, West Virginia and at 61,000 feet near Albany. The plane was constantly varying in altitude between 50,000 and 65,000 feet. Photographs show a nearly solid layer of strato-cumulus below along the coast with some cumulus building up through the strato-cumulus along the Maryland and Virginia coast. Near Albany, the pilot noted a high thin overcast extending up to 45,000 to 50,000 feet which was just below flight altitude.



Appendix IX



## Appendix IX

Test 126  
30 September 1966  
Hanscom Field, Mass.

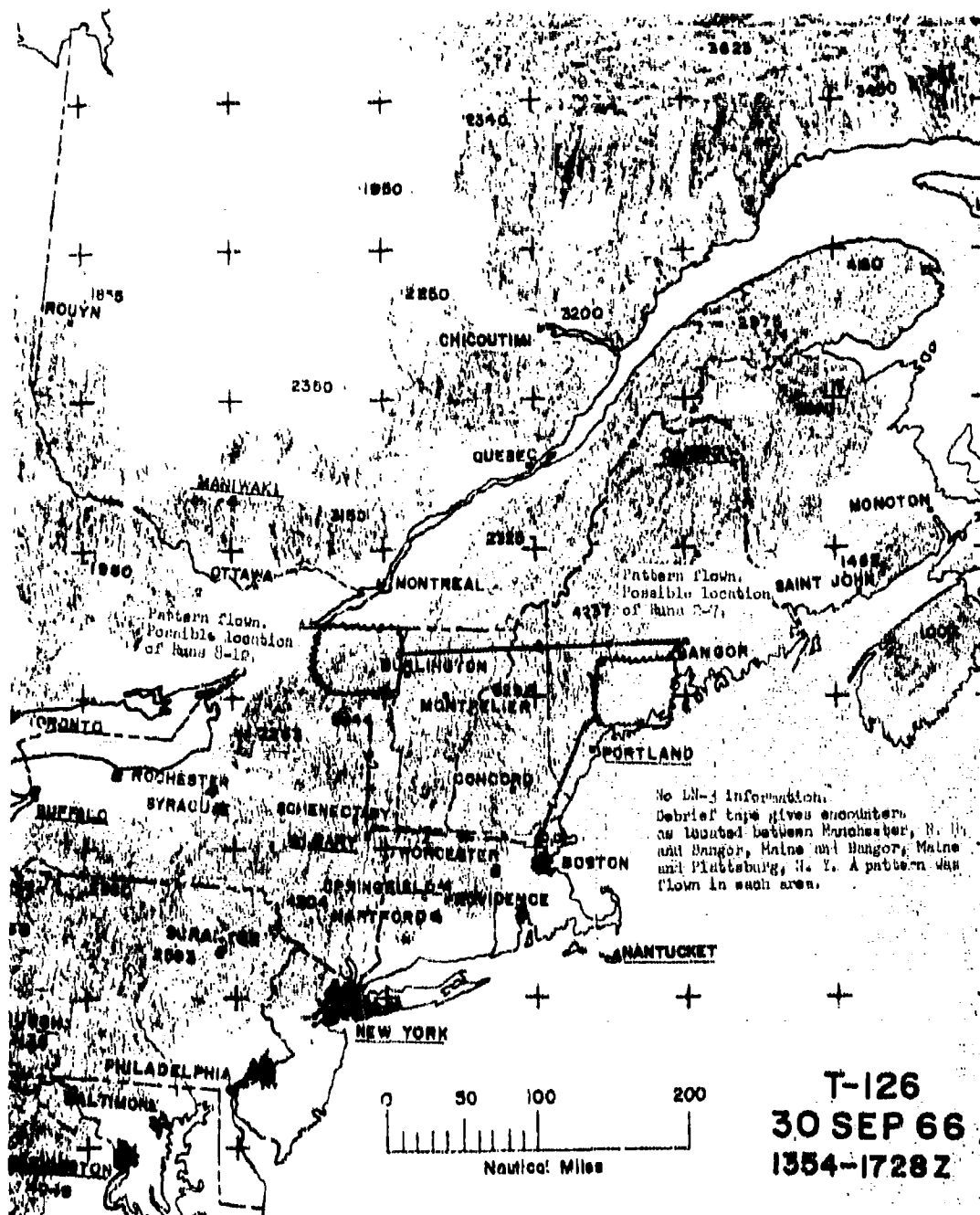
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A large low pressure area covered Eastern Canada at the surface. The associated cold front was well offshore and extended from Nova Scotia southwestward to Virginia. A pronounced trough aloft was centered along a line from Hudson Bay southwestward across the Great Lakes to Texas. A jet stream was situated over Massachusetts and northward along the coast with maximum wind speeds of 115 knots from the west-southwest. The forecast called for a primary area of light to moderate turbulence over Hanscom and a secondary area in Wisconsin. The maximum wind shear zone was located just to the southwest of Hanscom at 35,000 feet.

#### Pilot Report.

Moderate turbulence was experienced during climbout to 45,000 feet. The most severe was centered around 40,000 feet. Moderate turbulence was encountered at 50,000 feet from Manchester, New Hampshire to south of Bangor, Maine but none higher up. A search pattern was made, and turbulence was still being encountered at the extremities of the five minute legs. Very light turbulence was found at 55,500 feet between Bangor, Maine and Plattsburgh, New York. Light to moderate turbulence was experienced at 52,000 feet over Plattsburgh, and another search pattern was made. This time the turbulence ceased prior to completion of the five minute legs. It was mostly overcast with broken cirrus with tops at 30,000 feet and a deck of lower strato-cumulus between Boston and Bangor. There were low scattered to broken strato-cumulus with tops at 15,000 feet between Bangor and Plattsburgh and some bands of streaky cirrus. It was mostly clear from Plattsburgh back to Boston.



T-126  
30 SEP 66  
1354-1728Z

## Appendix IX

Test 130  
18 October 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

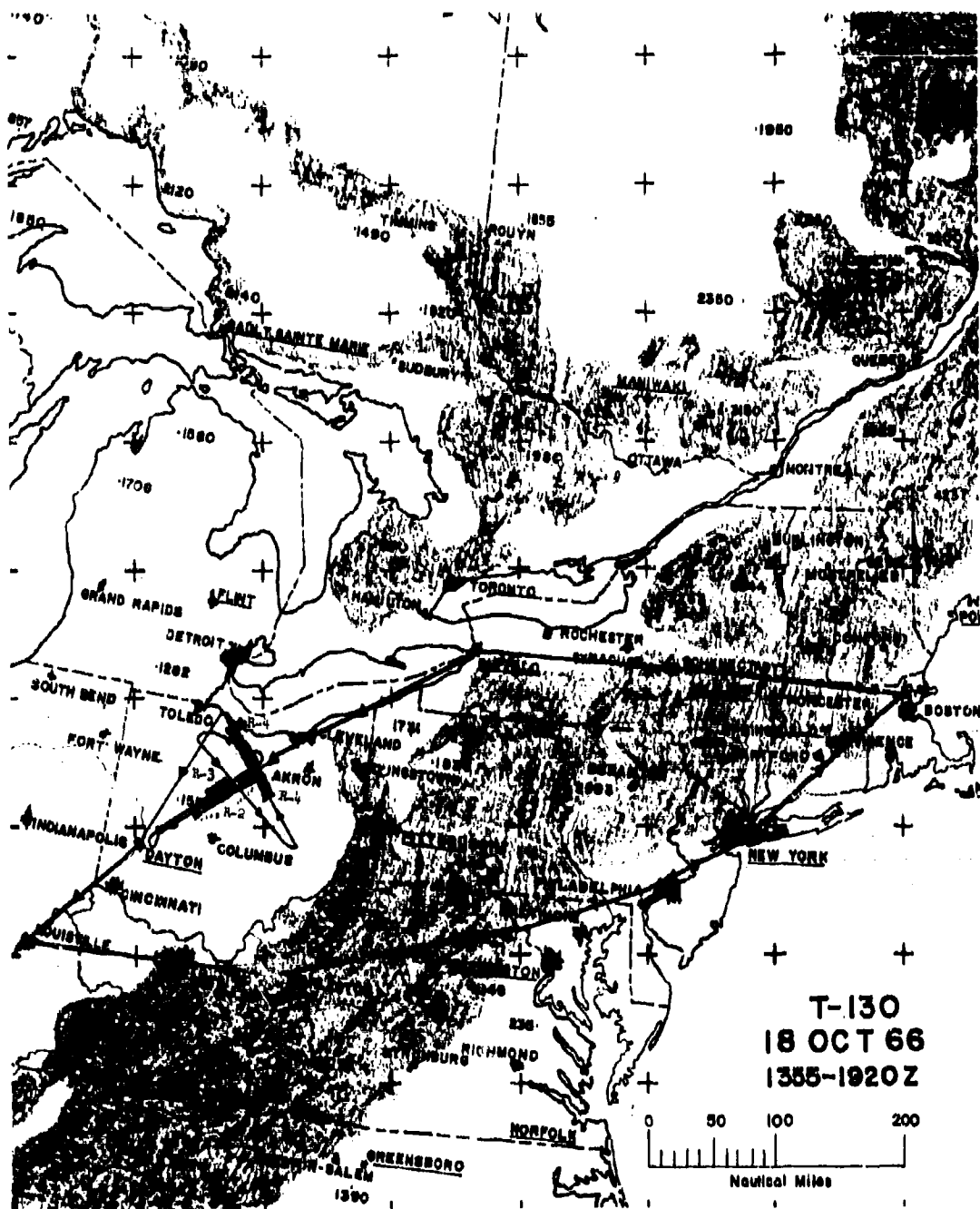
#### Meteorological Summary.

High pressure at the surface extended southward from eastern Canada across New York and New England to Virginia. Low pressure was centered over Hudson Bay with a cold front extending southward to Oklahoma. A complex low pressure system over Kentucky area extended southward to the Gulf of Mexico. A strong trough aloft extended from Minnesota southward to Texas. There was a southwesterly jet stream at 40,000 feet from Tennessee and Kentucky northeast across Ohio and Lake Erie into Canada; maximum winds were 140 knots. Slight ridge at 200 mb extended from New England southward to Maryland. Moderate turbulence was predicted over Paducah, Kentucky and Evansville, Indiana. There was also a strong vertical shear over the Great Lakes Region.

#### Pilot Report.

No turbulence was encountered while climbing to 60,000 feet on the Boston to Albany portion of the route. Then steady and consistent very light to light turbulence was encountered at 61,000 feet near Albany which continued without interruption all the way to Buffalo. There was a well-defined haze layer close to the flight level over this entire leg, similar to that observed by the pilot in Australia. Light turbulence was again encountered between Cleveland and Dayton at 62,000 feet. A flight pattern in this area defined the size of the turbulence area by the five minute legs. The pilot noted there was less turbulence when flying downwind or crosswind as compared with an upwind heading. The turbulence in this area was not as steady and consistent as it was between Albany and Buffalo. Only a few patches of very light turbulence were found on the return portion of the flight, mostly over the mountains west of Washington, D.C. There was a solid cirrus overcast from Buffalo westward with tops to 43,000 feet. There was a break in the high cloud deck over Ohio, and the turbulence in that area was encountered upon approaching the high shelf of cirrus lying to the north and east.

Appendix IX



## Appendix IX

Test 131  
20 October 1966  
Hanscom Field, Mass.

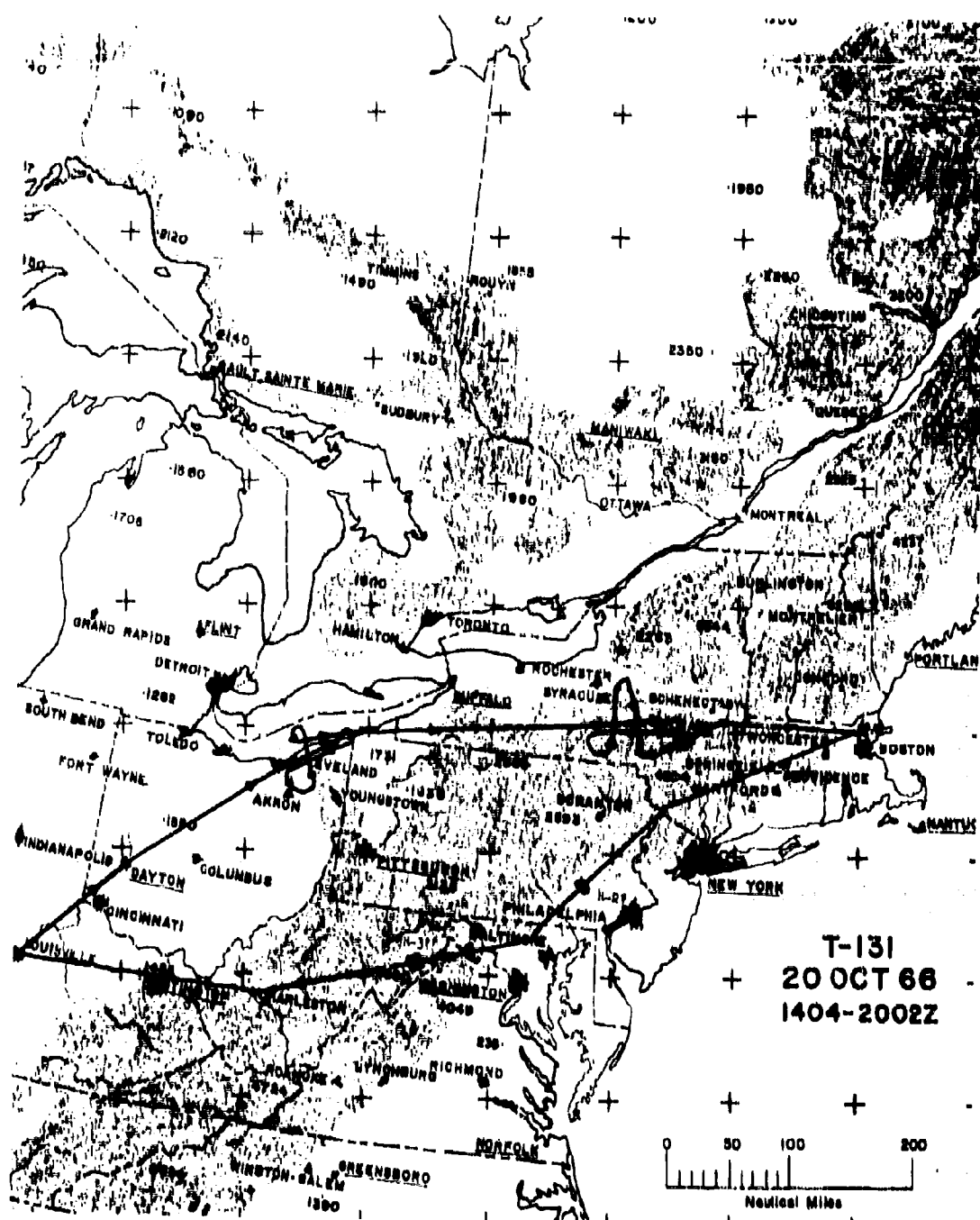
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A large high pressure area at the surface extended from the Great Lakes southward to the Gulf of Mexico. A sharp trough aloft over New England was associated with a jet stream plunging southeastward across New York State then turning sharply northward prior to reaching the coast. Maximum winds were 160 knots from the south-southwest over the New York City area. Severe turbulence was forecast in the Fort Knox area based on the large horizontal shear, and moderate to severe turbulence was forecast over Boston based on the large vertical shear.

#### Pilot Report.

The first turbulence encountered was very light at 52,000 to 54,000 feet south of Albany. Only low scattered clouds were present. Very light turbulence was again encountered at 53,000 to 55,000 feet near Westminster, Pennsylvania and very light at 58,000 to 60,000 feet over Westminster. Other areas of very light turbulence were at 56,000 feet over Charleston, West Virginia, and at 59,000 feet just east of Louisville. No turbulence could be found over Louisville up to 68,000 feet and none was found along the route through Dayton to Cleveland. Between Cleveland and Erie, the aircraft was in and out of very light turbulence at 55,000 feet. An area of light turbulence was found at 58,000 to 59,000 feet east of Erie, but the best turbulence found was moderate in intensity at 59,000 feet just west of Albany. This was in an area where the isotherms crossed the flow contours at a large angle to the rear of the trough aloft. The clouds in this area were low scattered to broken. In general, clear to scattered clouds were present west of a line through Albany and Westminster, and broken to overcast east of this line. It was stated that all clouds were low, hence presumably not cirrus type.



## Appendix IX

Test 132  
21 October 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

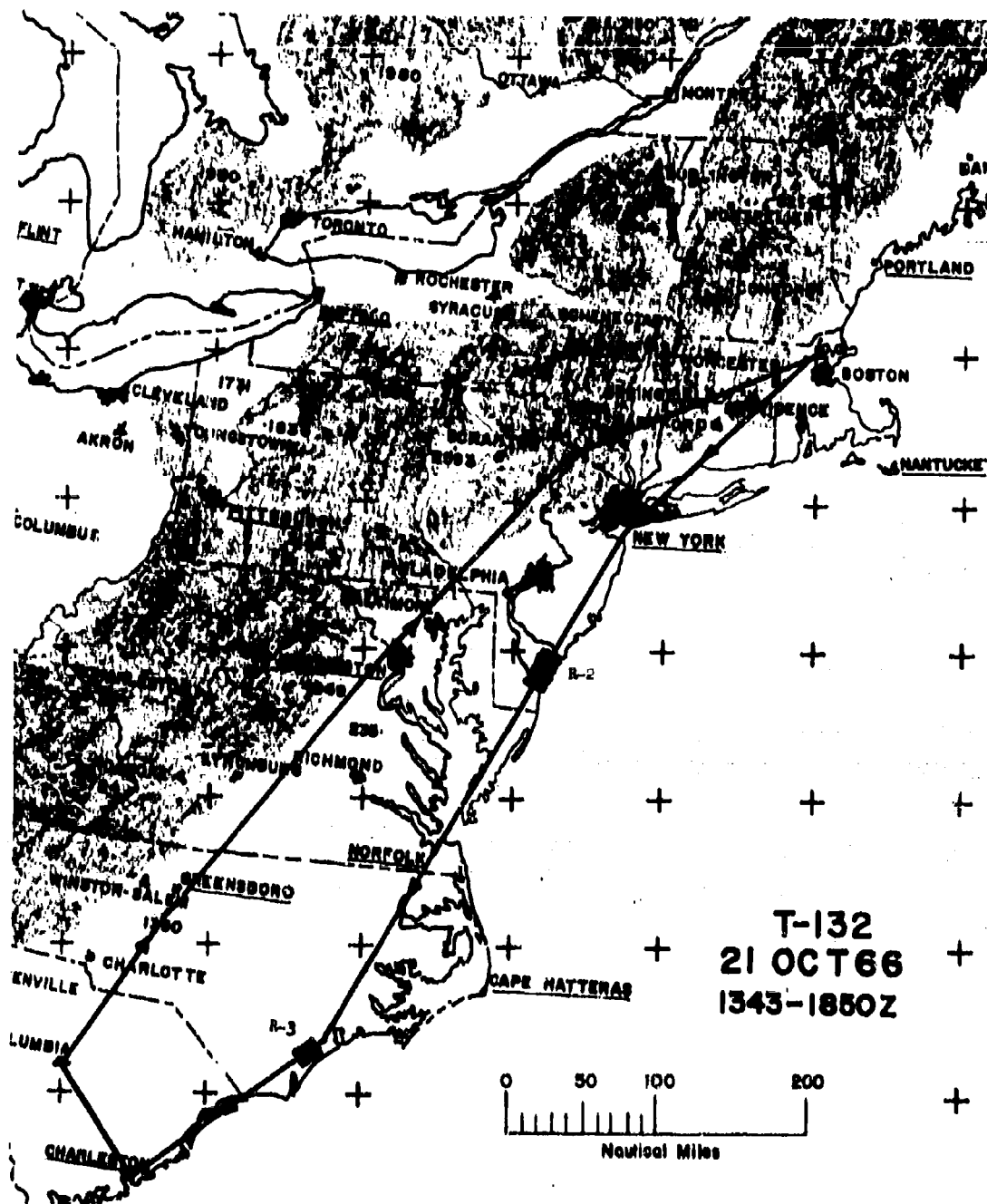
#### Meteorological Summary.

At the surface, a large high pressure area covered the entire east coast. Aloft, there was a ridge over the Great Lakes region and a trough over the Southern States. A southwesterly jet stream extended from the Gulf of Mexico up over Georgia and the Carolinas, and thence out to sea. Maximum winds were 110 knots at 40,000 feet over the Carolinas. The forecast called for moderate turbulence over the Charleston, South Carolina area where the vertical shear was four knots per thousand feet.

#### Pilot Report.

The first turbulence that was encountered was continuous and lasted about four minutes over the Delaware Bay area between Coyle, New Jersey, and Norfolk, Virginia. It was light in intensity and located at 52,000 feet. A sharp bump occurred at 52,000 feet over Wilmington, North Carolina, but nothing more. No turbulence was found over Charleston, South Carolina, at any altitude between 50,000 to 65,000 feet. On the return leg, light turbulence was encountered for about three minutes at 61,000 feet near Gordonsville, Virginia. It occurred in long swells with a wavelength of at least ten miles and there was a complete absence of any small ripples associated with it. A patch of very light turbulence was found at 51,000 feet north of New York City and at 58,000 feet over Boston. Photographs show thin streaks and in some places layers of cirrus which according to the pilot were associated with the jet stream at 40,000 feet.





## Appendix IX

Test 133  
24 October 1966  
Hanscom Field, Mass.

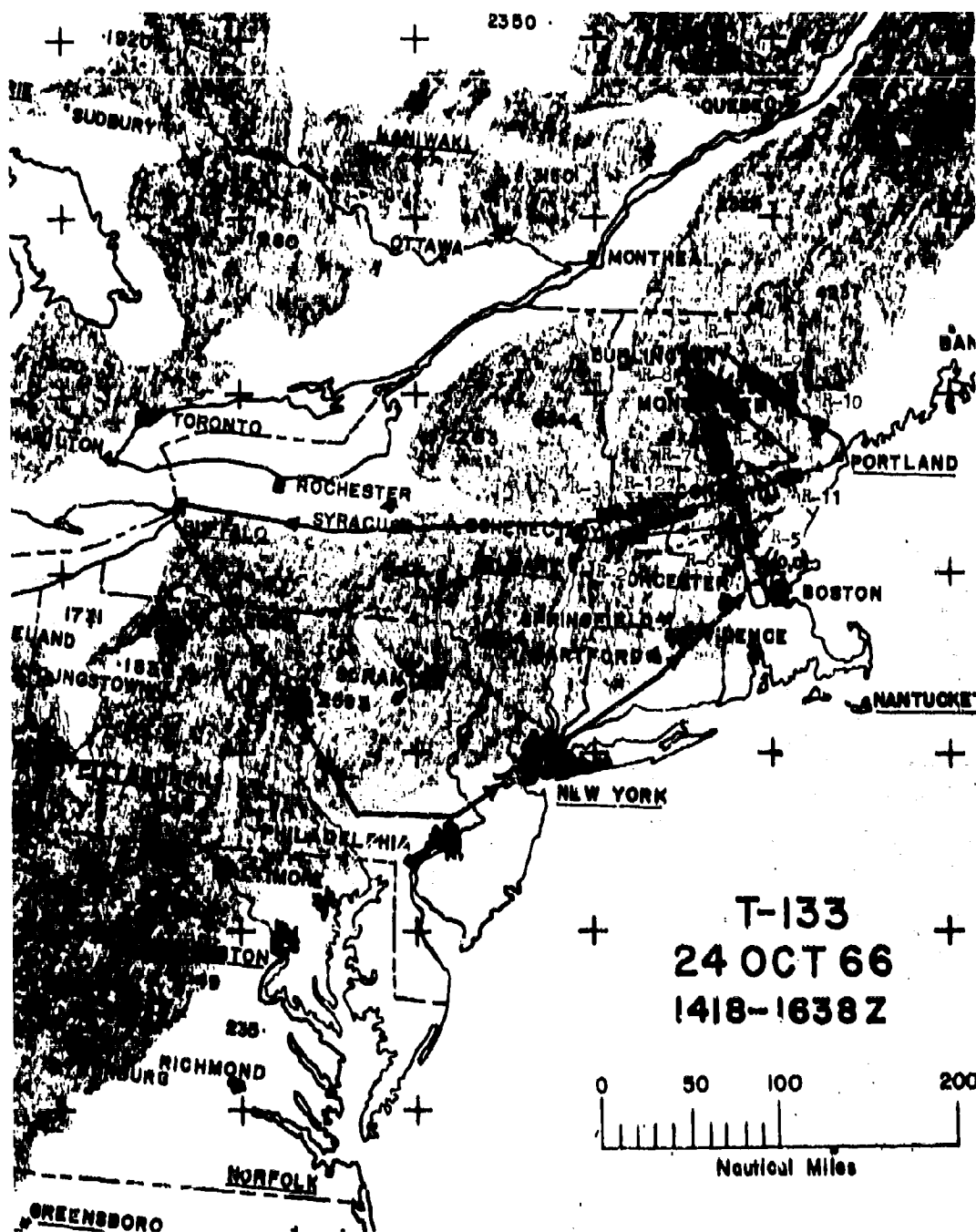
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, pressure was low over eastern Canada with a weak trough extending southward to Florida. A cold front extended from Nantucket southwestward through the central portions of the Carolinas and Georgia to New Orleans. A strong trough aloft extended south-southwestward from Hudson Bay to Texas. A southwesterly jet stream swept from Tennessee and northern Alabama northeastward to New England. At 200 mb, the air was much colder in the jet stream than on either side. For instance, at Huntington, West Virginia, the temperature was 8°C colder than at Dayton, Ohio and 9°C colder than at Greensboro, North Carolina. Maximum winds in the jet stream were near 120 knots over Pennsylvania. At 100 mb the temperature changes across the jet were only about 2°C. Although the vertical shear was four knots per thousand feet, moderate turbulence was forecast for Evansville area and light to moderate for the Nashville area.

#### Pilot Report.

There was fairly widespread light turbulence at 55,000 feet between Boston and Albany. At times, the intensity approached moderate. Upon climbing to 60,000 feet, only a little light turbulence was found. Just west of Albany, light turbulence was encountered at 64,000 feet and about seven minutes of light turbulence was found at 57,000 feet between Albany and Buffalo. From there, the pilot headed southeastward through Pennsylvania and encountered about 10 minutes of moderate to severe turbulence at 54,000 feet between Westminster and Yardley, or approximately in the Lancaster area. It was the worst the pilot had experienced. He stated that the wings were really flapping. He noted that the turbulence seemed to build up gradually to a big jolt then repeat the cycle. He did not change altitude, so the vertical extent is not known. A little light turbulence was experienced over New York City on the return leg. The weather was mostly clear in the Lancaster area, but the turbulence area between Boston and Albany occurred above the western edge of a layer of high thin cirrus which was oriented northeast-southwest or approximately parallel to the jet stream and the frontal system.



## Appendix IX

Test 134  
25 October 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

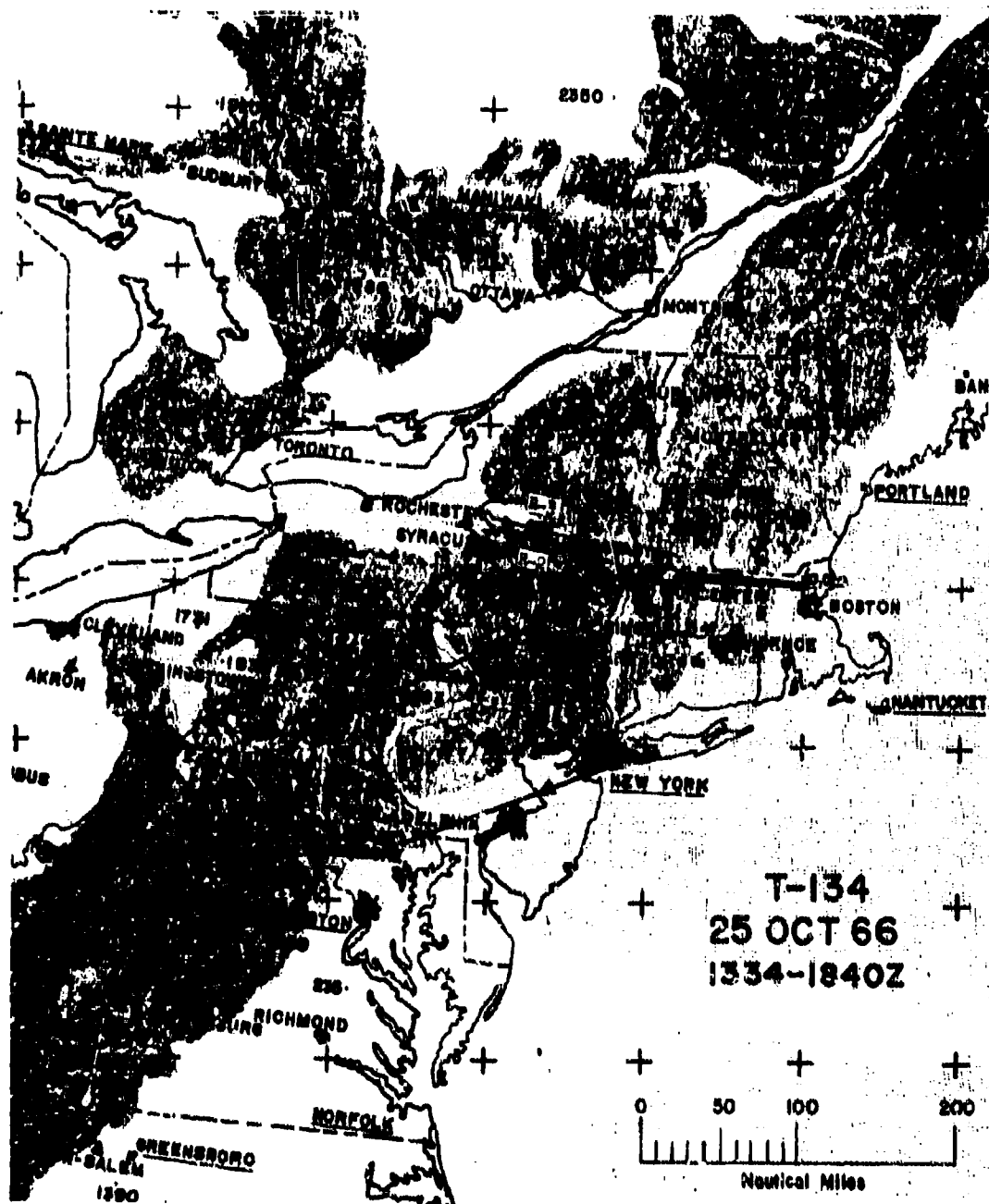
#### Meteorological Summary.

At the surface, pressure was high from the Great Lakes south-southwestward to Texas. There was a short wave large amplitude trough aloft which extended from New York State to the Gulf of Mexico. A jet stream aloft was flowing from the Gulf northeastward to New York City, maximum winds were 110 knots at 35,000 feet. Moderate turbulence was predicted over northeast Pennsylvania and a secondary area of light turbulence was forecast near Albany based on a four knot per thousand feet vertical shear over New York State.

#### Pilot Report.

Light turbulence was encountered at 52,000 to 56,000 feet during climbout to Albany. Then light turbulence was found at 59,500 to 61,000 feet over Albany. About four to five minutes of good light turbulence was found at 61,500 feet west of Albany, and 15 minutes of continuous light turbulence was found near Syracuse also at 61,500 feet. Very light turbulence was found at the same altitude between Syracuse and New York. From New York to Pittsburgh very light turbulence was found throughout at altitudes of 50,000 to 53,000 and 59,000 to 62,000 feet. On the return leg to Albany light turbulence was encountered at 62,000 feet near Phillipsburg, Pennsylvania, but did not last very long. However, the pilot noted that when he descended about 200 feet, he again encountered the top of the turbulence layer. The turbulence layer continued to descend throughout the flight to Albany where it was at 60,500 feet, implying a 1500 foot slope between Phillipsburg and Albany. The weather below was mostly clear west of Albany and in central and western Pennsylvania.

Appendix IX



## Appendix IX

Test 135  
26 October 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, a high pressure area extended from the Great Lakes southward to the Gulf of Mexico. A sharp short wave trough aloft over the eastern states was associated with almost north-to-south flow from the Great Lakes to the Gulf of Mexico and southerly flow from Florida northward to the North Carolina Capes thence northeastward out to sea. Maximum winds in the jet stream over the southeastern states was 115 knots at 30,000 to 35,000 feet with a strong vertical shear of 8 knots per thousand feet. The forecast called for light to moderate turbulence over Warner Robbins, Georgia, and a secondary area over Salisbury, Maryland, both at 60,000 feet.

#### Pilot Report.

The first turbulence found was very light at 52,000 feet just north of Norfolk. A little very light turbulence was found from 52,500 to 54,000 feet between Raleigh, North Carolina, and Columbia, South Carolina. Also, some very light turbulence was found at 65,000 feet over Atlanta. None could be found down to 53,000 feet in the primary forecast area around Macon. On the return leg, a little very light turbulence was found at 61,000 feet near Knoxville and between 64,000 and 66,000 feet near Charleston, West Virginia. From Charleston to Boston, it was "as smooth as glass" from 48,000 to 64,000 feet. The sky was overcast at Norfolk, scattered to broken in the Carolinas, overcast again in Georgia, and mostly clear along the northbound leg.

Appendix IX



## Appendix IX

Test 136  
27 October 1966  
Hanscom Field, Mass.

### FLIGHT DESCRIPTION

#### Meteorological Summary.

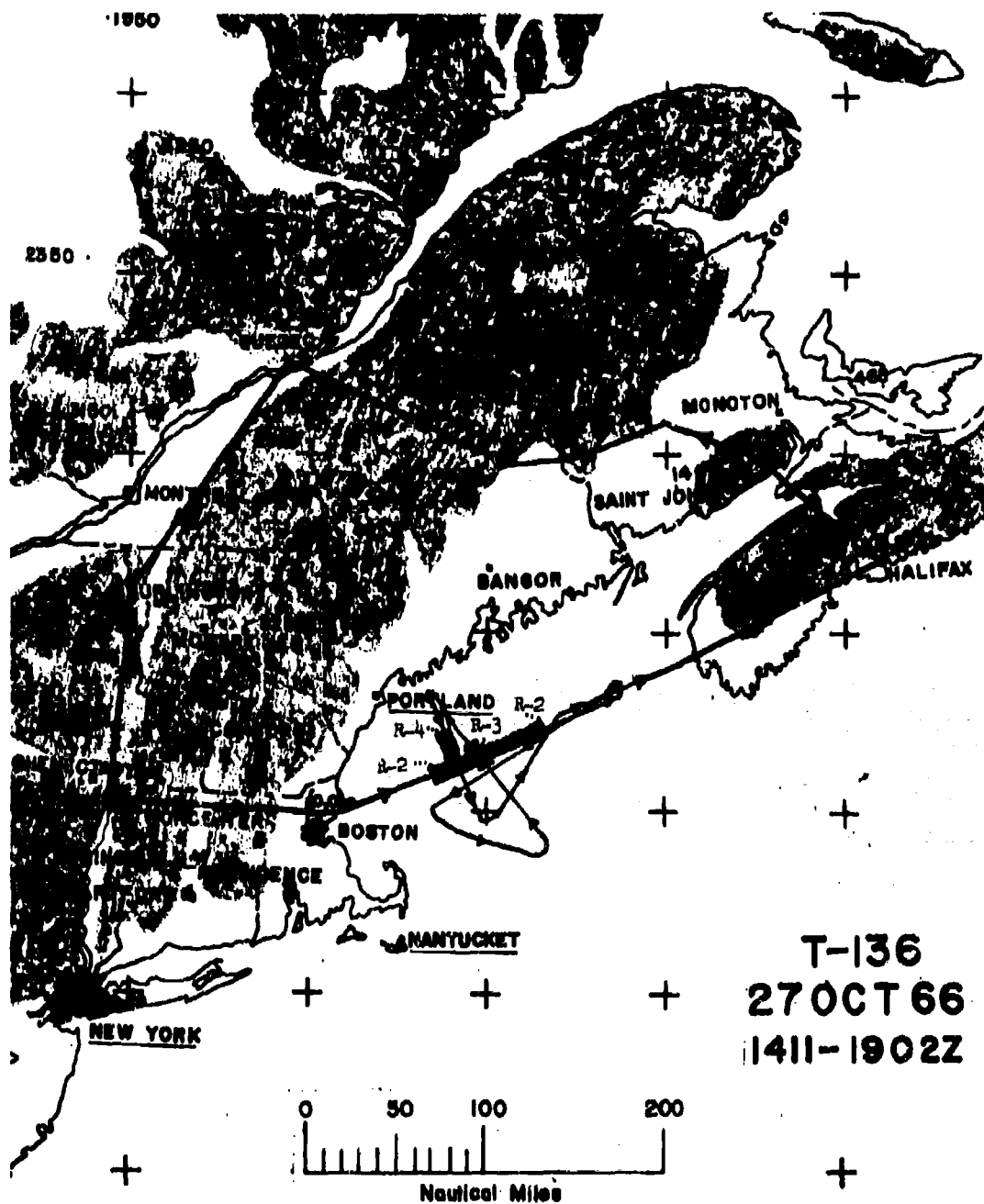
At the surface, pressure was high over the entire eastern portion of the United States. A short wave trough aloft was entered over the south Atlantic coastal states accompanied by weak winds aloft. A west to east jet stream swept across eastern Canada to the north of New York and New England. There was very little vertical shear anywhere so no turbulence was forecast. Maximum winds were 60 knots at 25,000 to 30,000 feet over northern Maine.

#### Pilot Report.

An area of light to moderate turbulence was found at 52,000 feet climbing out over the water east of Boston. The pilot reported peak readings of 0.4 to 0.5g. He was in turbulence for nearly 15 minutes, but ran out of it on the south leg of the pattern. It appeared to be 35 to 40 miles wide. The turbulence did not seem to be as heavy on the westbound leg (only 0.3g) as on an eastward heading. Upon proceeding on to Nova Scotia, light turbulence was found at 52,500 feet over Halifax and off and on over the entire route to Fredricton, New Brunswick, but none was found higher than 52,500 feet. Low lenticular clouds, at an estimated 20,000 to 25,000 feet were observed near Millenocket, Maine, so the pilot changed the flight plan to fly over the area. Light turbulence was found over the altitude range 52,000 to 58,000 feet in this area and in the range 50,000 to 58,000 feet in the area around Quebec City. Very spotty light turbulence was found at 52,500 feet on the return leg from Quebec through Plattsburgh, New York to Albany. A haze layer was noted at about 60,000 feet beginning about 15 minutes after takeoff and continuing all the way to Yarmouth, Nova Scotia. It was mostly clear over the route except for the lenticulars and broken to overcast cirrus with alto-cumulus below over Quebec.



Appendix IX



T-136  
27 OCT 66  
1411-1902Z

## Appendix IX

Test 137  
28 October 1966  
Hanscom Field, Mass.

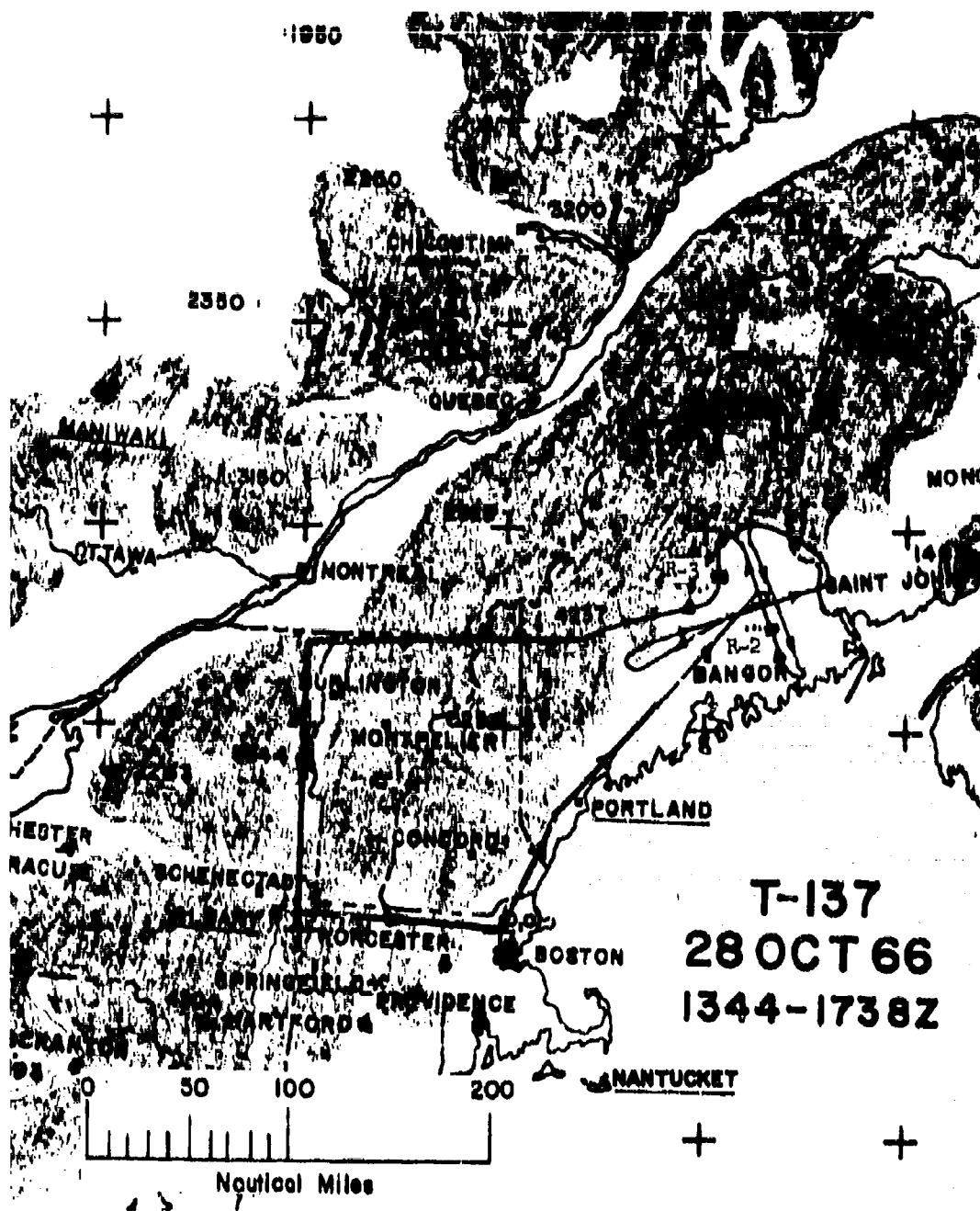
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A cold front extended from extreme northern Maine southwestward across the area north of New York State, through Michigan to Oklahoma. A weak low pressure front extended from Maine southwestward to the Great Lakes. Nearly west-east flow aloft was associated with the jet stream in Canada; maximum winds were 90 knots at 40,000 feet in northern Maine. No areas of turbulence were forecast but the area of maximum vertical shear was in Canada west of Maine.

#### Pilot Report.

Very light turbulence of eight minutes duration was found at 54,000 feet just north of Kennebunk, Maine. Although the turbulence was light, airspeed oscillations of  $\pm 3$  knots and two seconds duration were noted. Spotty very light turbulence was found in the Bangor area; and a relatively small area of moderate turbulence occurred at 53,000 feet just north of Bangor. Another small area of moderate turbulence was encountered near Plattsburgh, New York at 62,000 feet. Nothing could be found at any altitude over Albany. Scattered to broken clouds occurred along the flight route.



T-137  
28 OCT 66  
1344-1738Z



167

## Appendix IX

Test 140  
4 Nov. 1966  
Ramey AFB, Puerto Rico

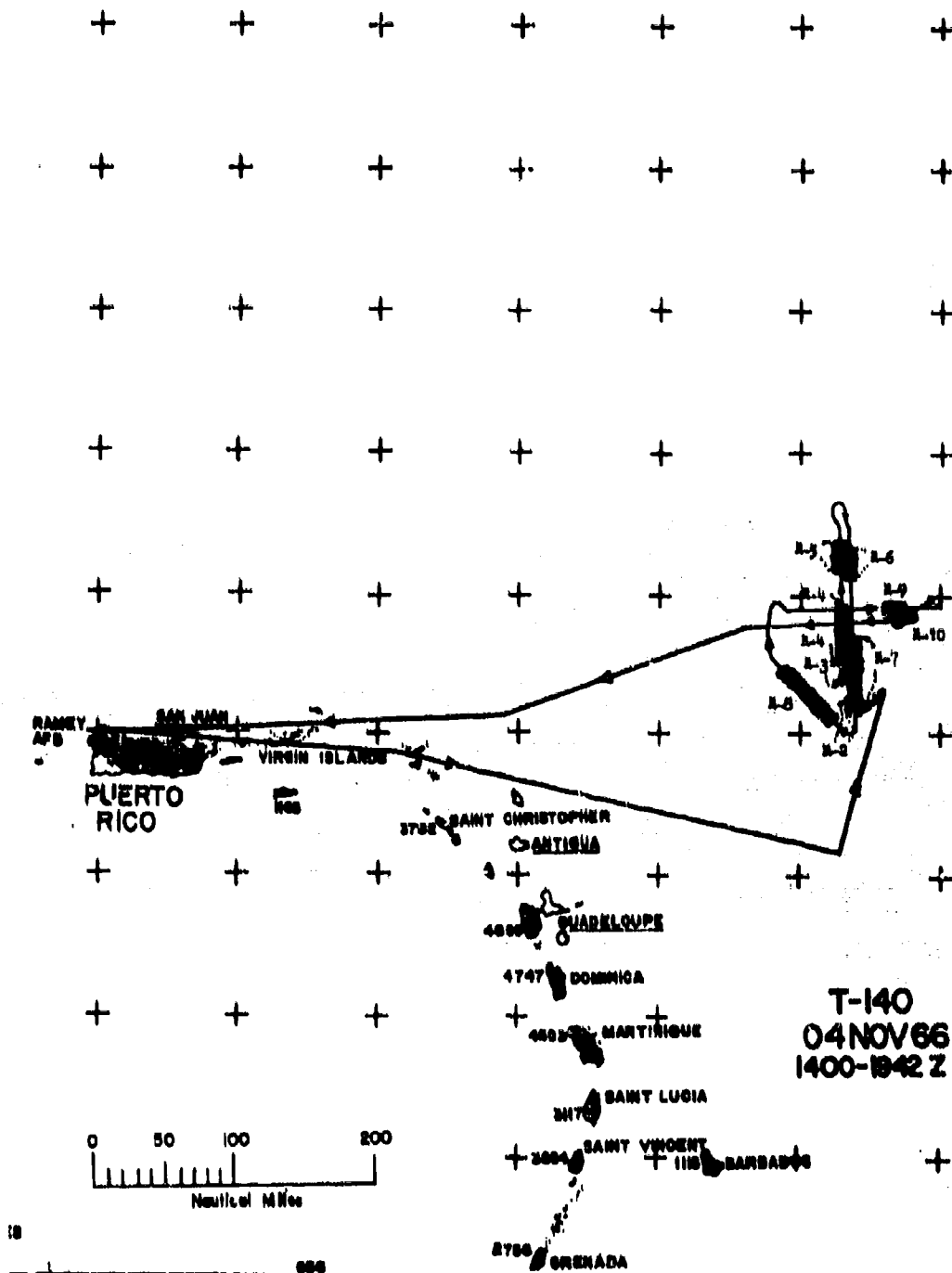
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, a weak cold front was oriented north-northeast to south-southwest across Hispaniola. At 55,000 feet there was a zone of converging winds oriented northeast-southwest between Antigua and Martinique. The Offutt AFB Global Weather Central prediction called for a primary area of moderate to severe turbulence between 55,000 and 65,000 feet along this convergence zone near coordinates (30 nmi S, 510 nmi E). A secondary area of moderate turbulence was predicted at coordinates (200 nmi N, 400 nmi E) for the same altitude range. Maximum winds over the area were north 55 knots at 14,000 feet.

#### Pilot Report.

An area of light turbulence was found at 51,500 feet in the primary forecast area. A search pattern was flown and about 10 to 15 minutes of turbulence was found on each 20-minute leg. However, most of the turbulence was out on the legs away from the center of the area implying a doughnut shape to the turbulence area. Only a few ripples were found at higher altitudes up to 67,000 feet. Clouds in the turbulence area were low scattered to broken cumulus with tops around 10,000 feet.



T-140  
04 NOV 66  
1400-1942 Z

## Appendix IX

Test 141  
7 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

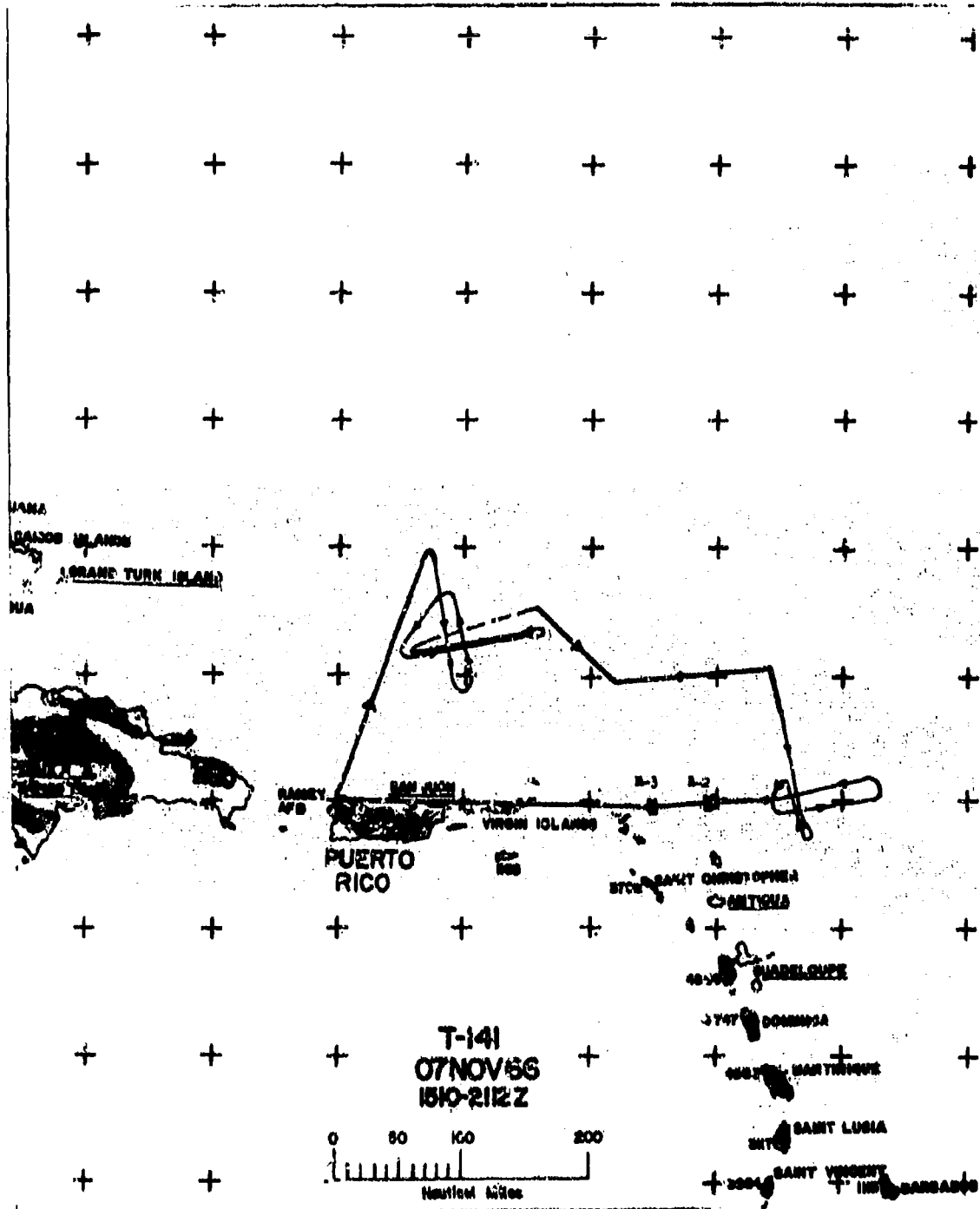
#### Meteorological Summary.

No fronts or convergence zones were in the area. Winds aloft were northwesterly. The highest winds were over Grand Turk and eastward with maximum speeds of 65 to 70 knots. A primary area of moderate turbulence was forecast for 55,000 to 65,000 feet at coordinates (90 nmi N, 60 nmi E) in the zone of maximum winds and largest horizontal shear. A secondary area of light to moderate turbulence was forecast for 55,000 to 65,000 feet near coordinates (30 nmi N, 340 nmi E) in the area of maximum vertical shear.

#### Pilot Report.

Light turbulence was found at 60,000 feet in the primary forecast area about 180 miles north of Puerto Rico. The turbulence area measured about 40 to 50 miles north-to-south and 20 to 30 miles east-to-west as determined from the 15 minute legs of the search pattern. The weather in the area was low broken to scattered cumulus and scattered high thin cirrus. Tops of thunderstorms with cirrus anvils streaming far downward were seen at an estimated height of 30,000 to 35,000 feet and a distance of 150 miles to the northeast. In the secondary forecast area to the northeast of Antigua, a narrow band of light turbulence was found at 49,500 feet. It was only two to three hundred feet thick. Low scattered clouds occurred in the area. On the return leg, some light turbulence was found at 61,000 feet about 20 to 30 miles east of St. Thomas in the Virgin Islands.

# Appendix IX





## Appendix IX

Test 142  
8 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

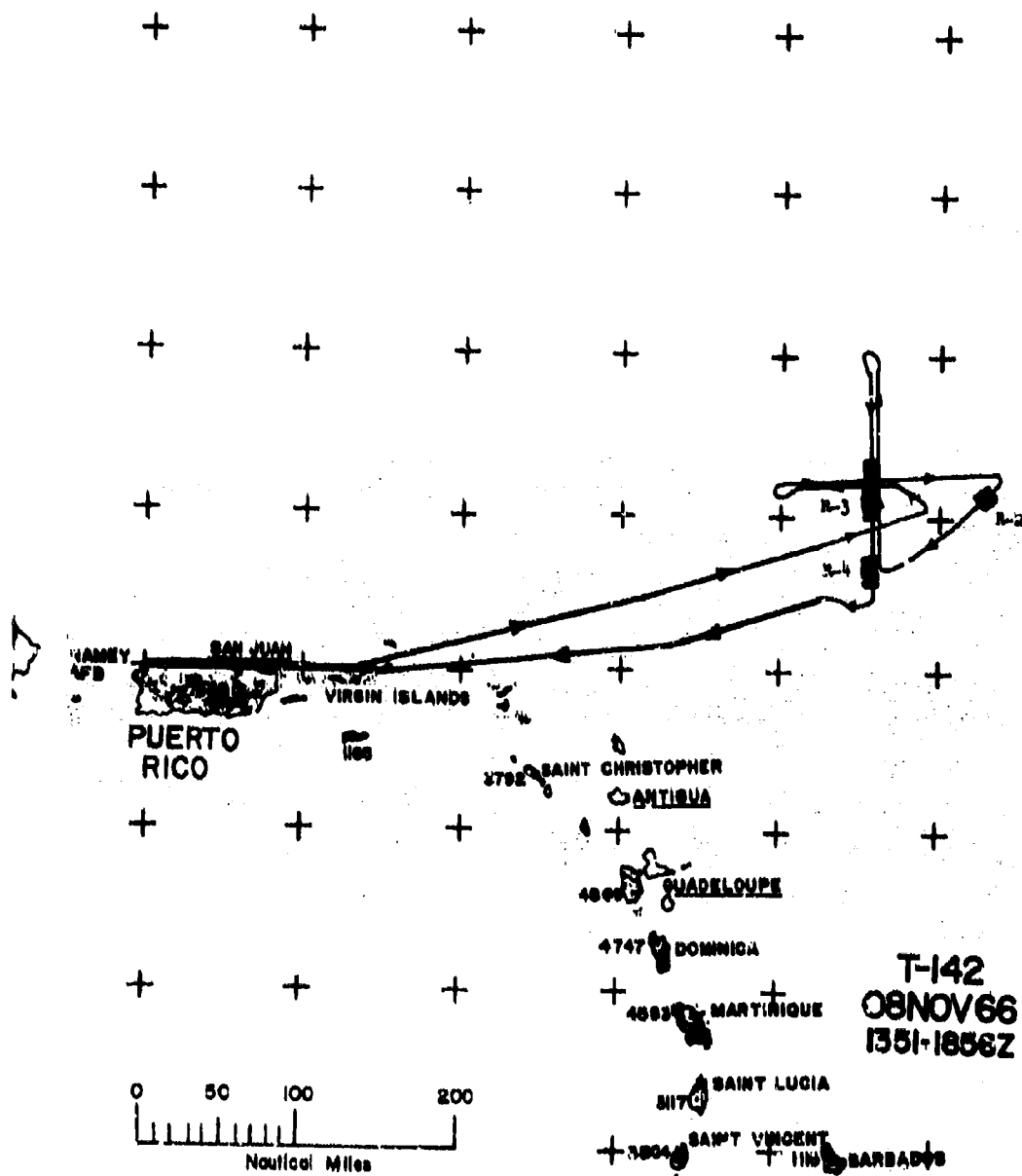
#### Meteorological Summary.

At the surface a large high pressure system extended from the east coast of the United States down over the area. A trough aloft was centered over Puerto Rico. Maximum winds were 70 knots at 47,000 feet over Antigua. A primary area of moderate turbulence was forecast for the layer 60,000 to 70,000 feet centered at (90 nmi N, 510 nmi E). A secondary area of light to moderate turbulence was forecast for 60,000 to 70,000 feet centered at coordinates (330 nmi N, 230 nmi W).

#### Pilot Report.

No turbulence was found to the west of the primary area except for a little light patch at 51,000 feet over St. Thomas. An area of light turbulence was found at 51,000 feet slightly to the east and a bit to the south of the primary forecast area. On the return trip, a few ripples were found at 67,000 feet over St. Thomas, and turbulence was encountered at 50,000 feet while descending along the north coast of Puerto Rico. It was clear along both the north and south coasts, but a large thunderstorm with its top at 52,000 feet was situated over the center of the island. The aircraft was about 20 miles north of the thunderstorm at the time of turbulence encounter. Photographs show only scattered alto-cumulus in the primary turbulence area, but cumulo-nimbus with long streaming anvil tops were present far to the north.

Appendix IX



## Appendix IX

Test 143  
9 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

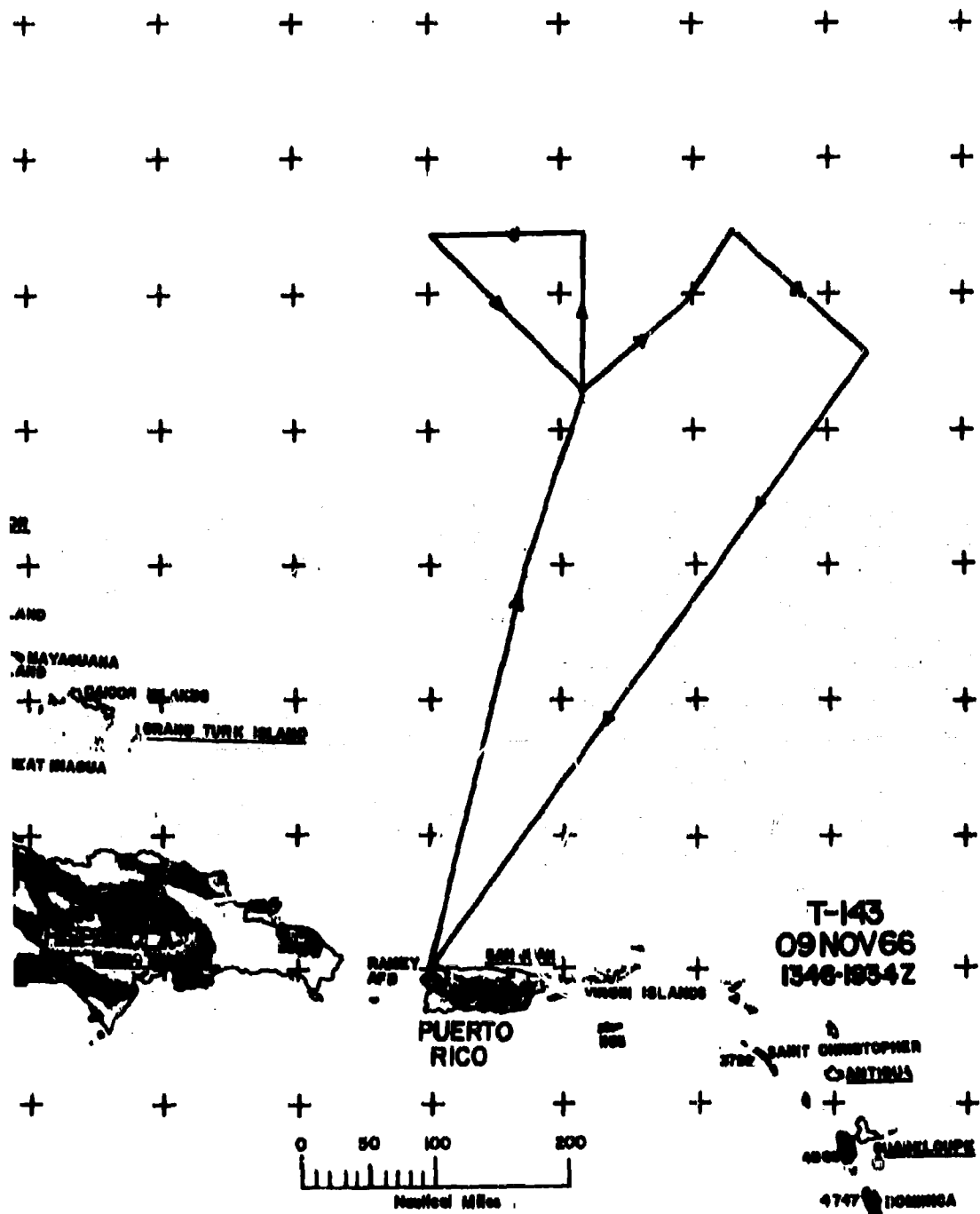
#### Meteorological Summary.

At the surface, an extensive high pressure area covered the entire western Atlantic and extended down into the Caribbean area. There was a trough aloft over the area centered approximately along the longitude of Puerto Rico. Maximum winds aloft were 70 knots over Puerto Rico. The primary forecast area for turbulence was at altitudes between 55,000 and 65,000 feet centered at coordinates (120 nmi N, 110 nmi E). A secondary area was forecast at (210 nmi N, 680 nmi E) for the same altitude range.

#### Pilot Report.

No turbulence was found in the primary area. Only a few ripples could be found throughout the entire altitude range 45,000 to 66,000 feet. Very light turbulence was experienced on climbout between 38,000 and 46,000 feet. The clouds over most of the route were scattered to broken cumulus except in the northeast portion of the route which was near the southwestern edge of an extensive thick cirrus deck with tops 40,000 to 44,000 feet. Occasional thunderstorm tops could be seen protruding through the cirrus. However, other than for a few ripples, no turbulence was found upon flying over this extensive cirrus deck.

Appendix IX



## Appendix IX

Test 144  
10 Nov. 1966  
Ramey AFB, Puerto Rico

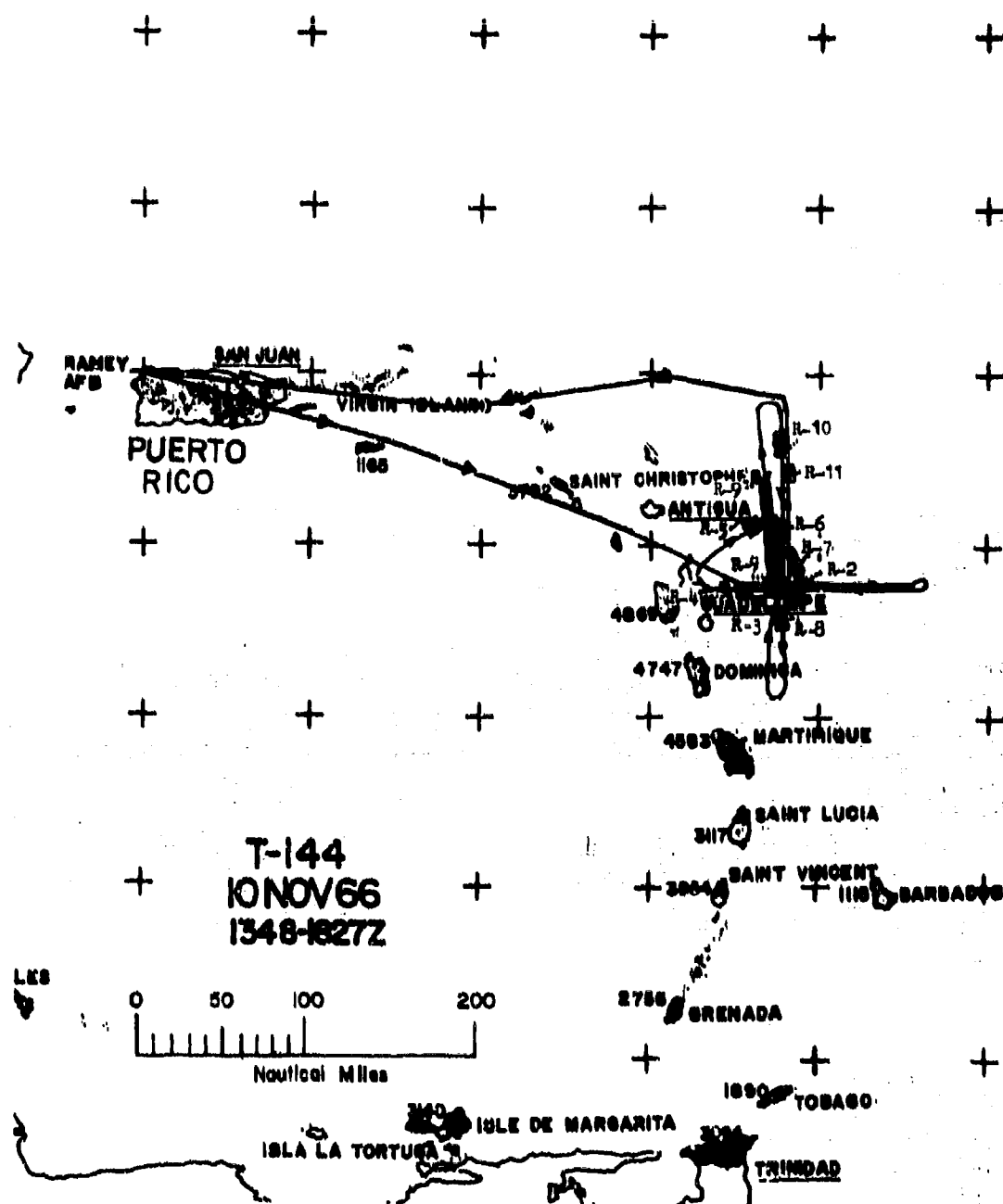
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A trough aloft was accompanied by a jet stream over the area. Maximum winds were 100 knots from the west-southwest at Antigua. There was a relatively large vertical shear of 8 knots per thousand feet between 45,000 and 53,000 feet and a sharp inversion between 53,000 and 63,000 feet over Guadeloupe. Since the primary and secondary forecast areas were well to the north, at coordinates (390 nmi N, 450 nmi E) and (510 nmi N, 280 nmi W), respectively, the pilot headed for the Antigua-Guadeloupe area first.

#### Pilot Report.

Clear air turbulence was experienced on climbout. It was moderate between 20,000 and 23,000 feet, and the aircraft was in and out of light turbulence all the way up to 46,000 feet. There was none above 46,000 feet until reaching the area to the east of Antigua and Guadeloupe where light to moderate turbulence was found at 58,000 feet. A search pattern was flown in the area, and the turbulence area was found to be more elongated in the north-south direction, where it was continuous for 14 minutes, than in the east-west direction. The horizontal and vertical extent of the turbulence area was well defined since the plane ran out of the turbulence on all sides, except possibly on the north, while flying the legs of the search pattern. Flights were also made through the same area at lower and higher altitudes. Light turbulence was still found at 59,000 feet (1000 feet higher) but not very much at 60,000 feet; there was also very little below 57,000 feet. A temperature change of 6°C was noted while flying the 100 mile north-to-south leg of the pattern. Winds in the area were estimated to be east at 40 to 50 knots at 60,000 feet. On the return flight to Ramey, only ripples of turbulence could be found at all altitudes up to 67,000 feet. A large thunderstorm with top at 40,000 feet was situated over St. Thomas. A little light turbulence was experienced while passing over the thunderstorm at 63,000 feet. While descending over Puerto Rico, moderate turbulence was again encountered at 20,000 feet, but the layer was thinner than during climbout. The weather in the main turbulence area was characterized by a solid thick deck of cirrus below. In other areas, there were scattered-to-broken cumulus and cumulo-nimbus.



## Appendix IX

Test 145  
14 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

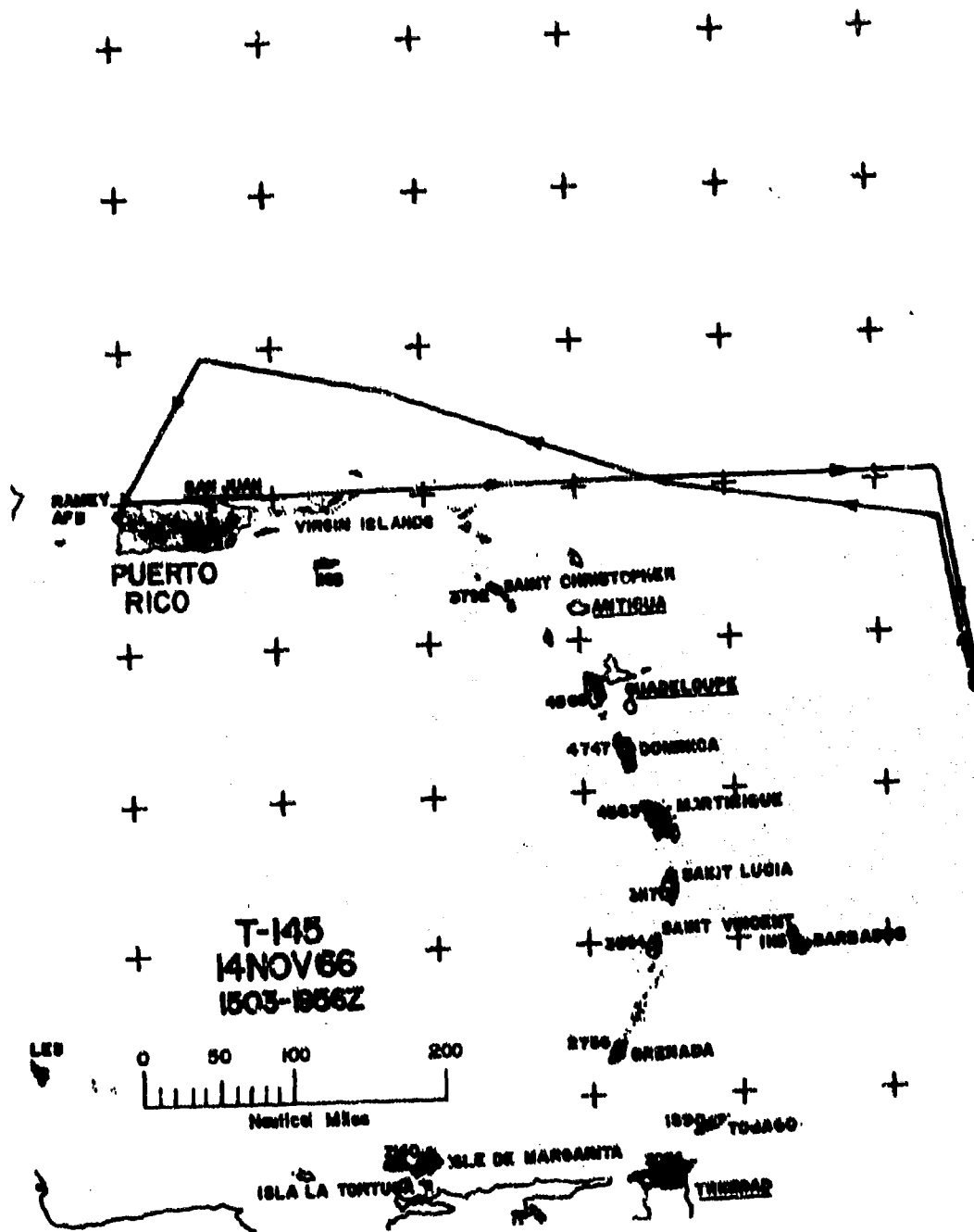
#### Meteorological Summary.

At the surface, a low pressure area was centered far to the north of the base with a cold front extending southwestward through the Bahamas; a weak trough aloft existed over the area with converging flow aloft in the area between Curacao and Martinique. The forecast called for a primary area of moderate turbulence near (30 nmi S, 570 nmi E) and a secondary area of light-to-moderate near coordinates (150 nmi N, 60 nmi E). Maximum winds over the area were only 40 to 45 knots.

#### Pilot Report.

No significant turbulence was found in either forecast area in the altitude range 48,000 to 65,000 feet. There were scattered alto-cumulus near the Virgin Islands, scattered-to-broken cumulus with some cirrus in the area north of the Leeward Islands, and broken-to-overcast cirrus to the immediate east of islands.

# Appendix IX





## Appendix IX

Test 146  
15 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

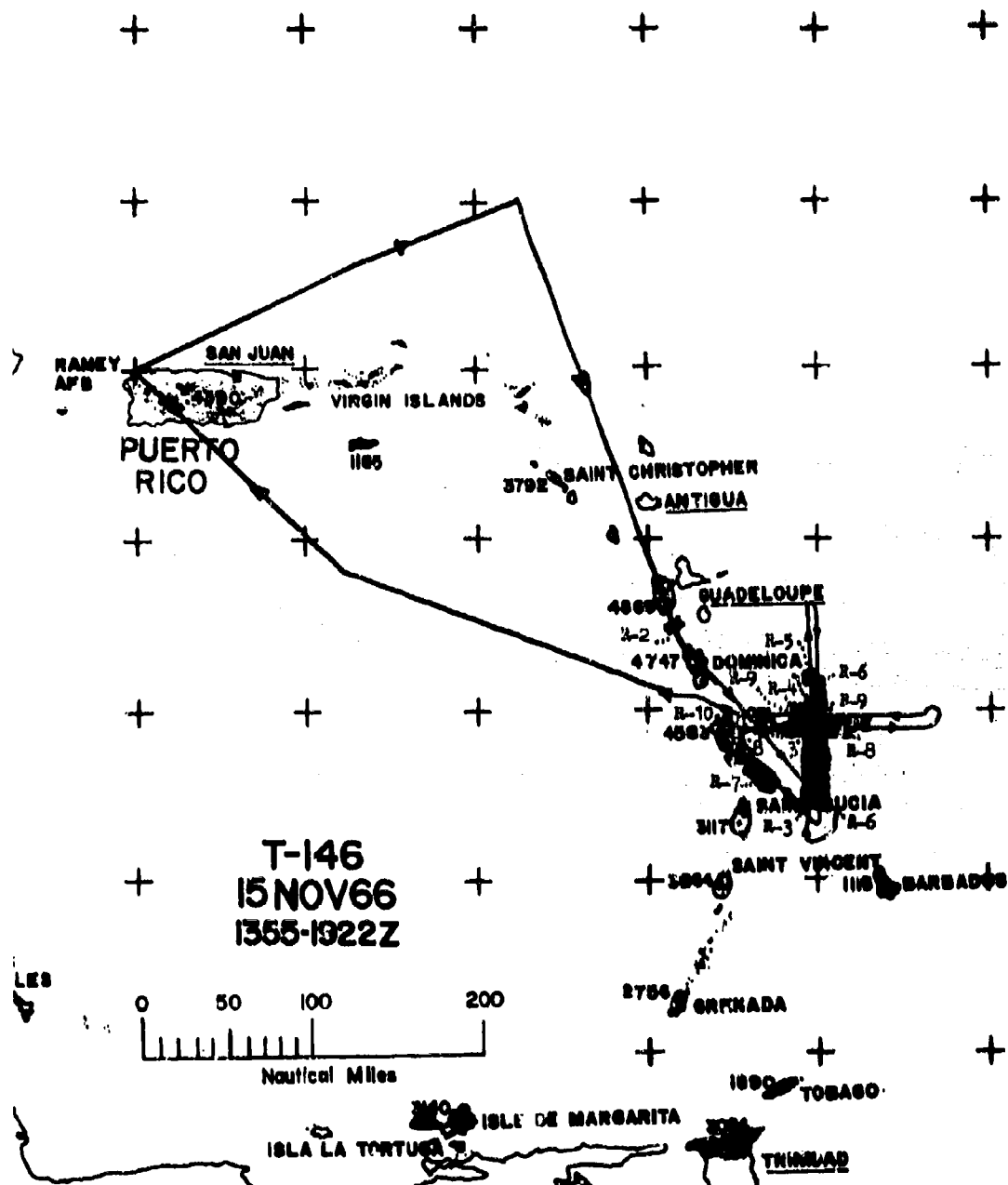
#### Meteorological Summary.

At the surface, a cold front was approaching Hispaniola from the northwest. Winds aloft were generally light except for a southwesterly jet with speeds of 50 knots at altitudes of 40,000 to 55,000 feet. The primary area of moderate turbulence was forecast for 60,000 to 70,000 feet near (150 nmi N, 230 nmi E). The secondary forecast area was far to the north; however, upper air soundings indicated "cooling and overturning" had occurred in the Trinidad and Seawell areas at altitudes of 58,000 to 62,000 feet, so this area was also included in the flight plan.

#### Pilot Report.

No turbulence was found in the primary forecast area. However, upon proceeding southward, light turbulence was found at many levels between 50,000 and 59,000 feet from Guadeloupe on. It appeared to be most persistent at 52,000 feet in an area about 100 miles east of Martinique where a search pattern was flown. Some of the turbulence in this area was considered to be moderate. No turbulence was found between 59,000 and 69,000 feet. A haze layer was noted at about 50,000 feet. There was a complete blanket of cirrus clouds below in this area, but otherwise only scattered clouds were encountered. According to the pilot, the winds in the search pattern area were northerly at 40 to 50 knots, and the temperature was  $-75^{\circ}\text{C}$ , implying the presence of a zone of strong convergence between this area and the southwesterly flow to the south.

Appendix IX



## Appendix IX

Test 147  
16 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

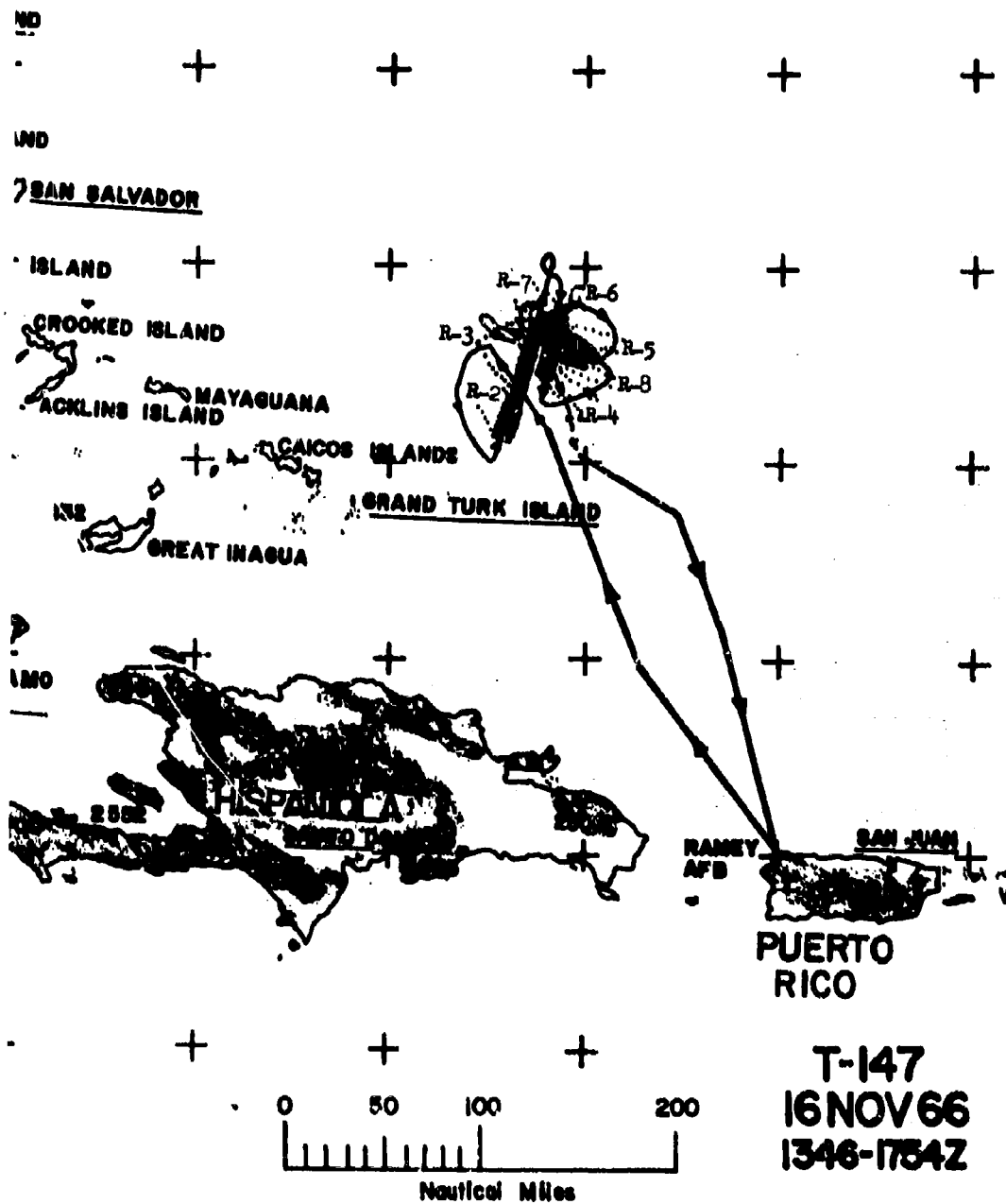
#### Meteorological Summary.

A nearly stationary cold front was located in the Hispaniola and Grand Turk areas with west-southwesterly flow aloft over the frontal zone. A primary area of moderate to severe turbulence was forecast for 55,000 to 60,000 feet near coordinates (150 nmi N, 110 nmi W) in an area of fairly strong horizontal wind shear. A secondary area of moderate turbulence was forecast for 55,000 to 65,000 feet near (150 nmi N, 570 nmi E). Maximum winds were 75 knots at 38,000 feet over the frontal zone.

#### Pilot Report.

An area of light to moderate turbulence was found near the primary forecast area at 50,000 feet. The area was approximately 50 miles square and the moderate turbulence seemed to be concentrated in one small area near the center. The thickness covered 1000 feet with extreme limits of 49,200 to 50,800 feet. The center of the turbulence area seemed to be situated right over the cold front. There was an extensive cloud cover to the east and broken clouds to the west. The cirrus over the front were unusually thick and dark looking with tops at 40,000 feet. There was no turbulence above 50,800 feet except some very light at 58,000 feet over a much wider area. Photographs show scattered-to-broken cumulus between Puerto Rico and the turbulence area and solid cirrus with cumulo-nimbus tops protruding above in the turbulence area.

Appendix IX



## Appendix IX

Test 148  
17 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

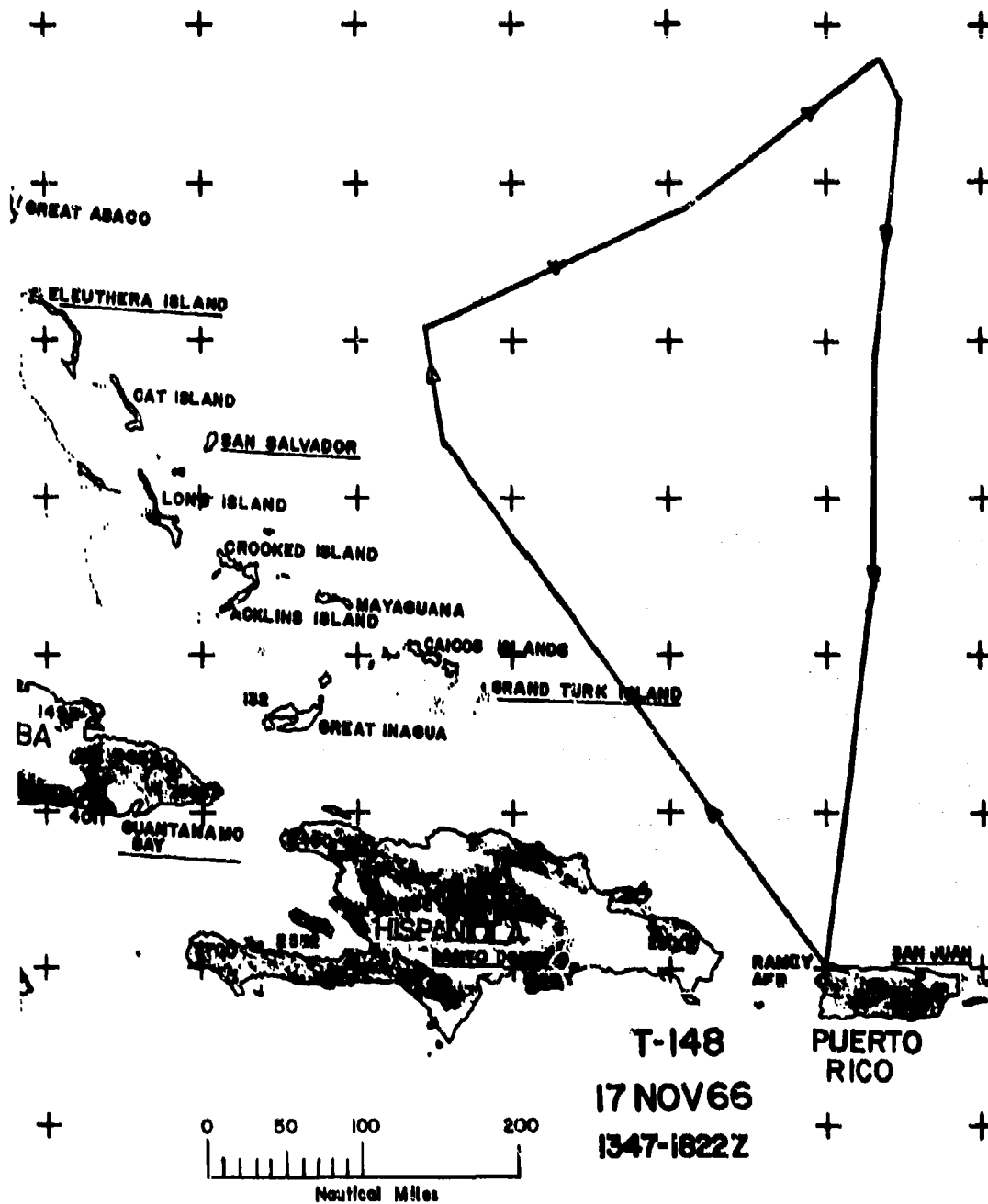
#### Meteorological Summary.

A stationary and dissipating cold front was located just to the north of Ramey. A southwesterly jet stream with maximum winds 80 knots at 44,000 feet swept over Grand Turk, lowering and intensifying to 110 knots at 34,000 feet over Bermuda. A primary area of moderate turbulence was forecast for 45,000 to 65,000 feet centered at (390 nmi N, 340 nmi W), and a secondary area of moderate turbulence for 45,000 to 60,000 feet at coordinates (630 nmi N, 60 nmi E).

#### Pilot Report.

Only spotty very light turbulence was found in the predicted areas at the altitude range of 57,000 to 65,500 feet. The turbulence did not persist for more than one or two minutes at a time. Clouds below along the southern portion of the route were mostly scattered cumulus over the water with large buildups over the larger islands. There was a solid cirrus deck below throughout the north-eastern portion of the flight path in the area where most of the turbulence was found.

Appendix IX



## Appendix IX

Test 149  
21 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

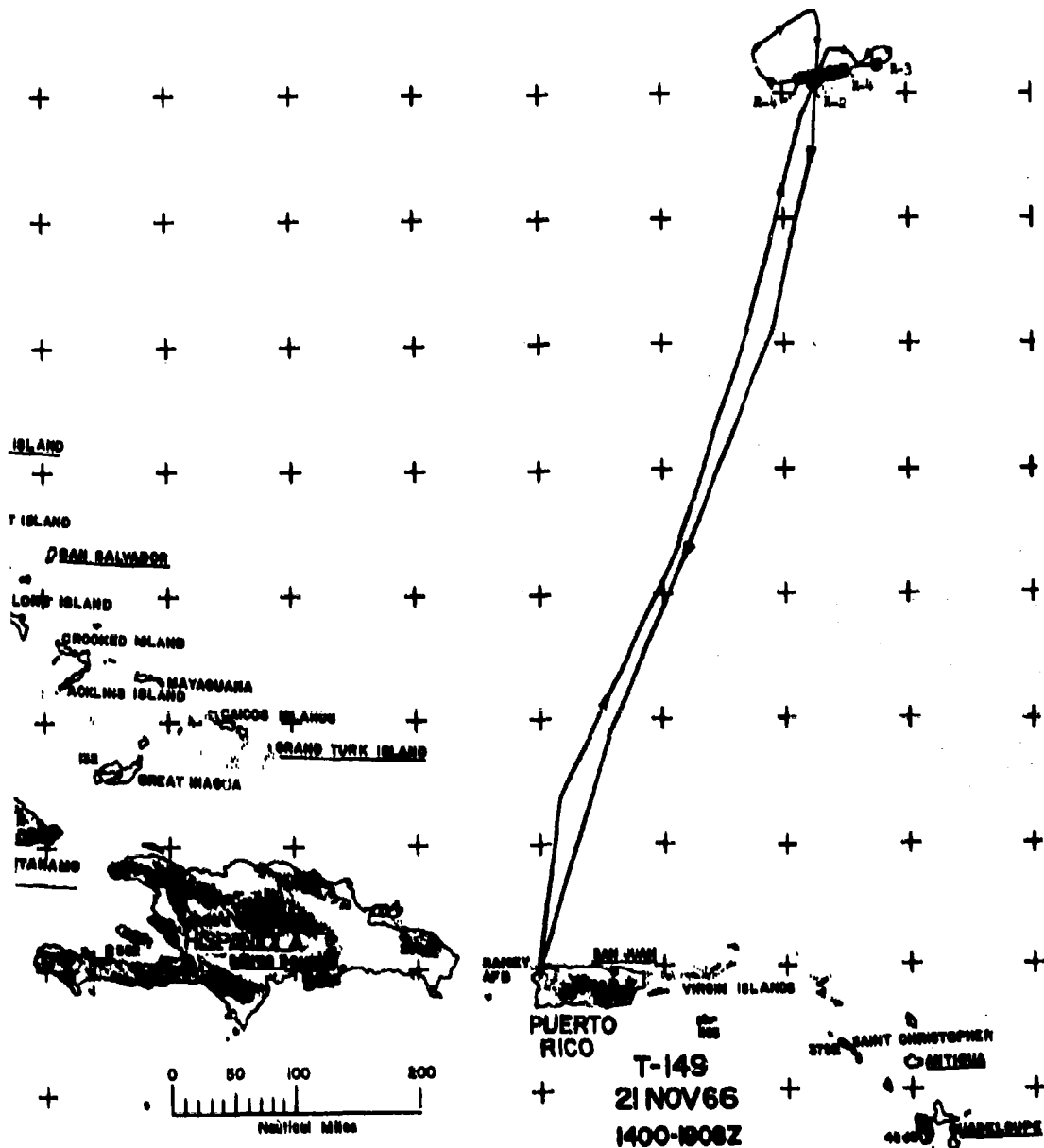
#### Meteorological Summary.

A surface cold front was lying along a line from about (690 nmi N, 400 nmi E) southwestward across the Bahamas to southern Florida. There was a southwesterly jet stream over the frontal zone with maximum winds of 75 knots at 40,000 feet extending from Grand Turk to Bermuda. A primary area of moderate turbulence was forecast for the altitude range 60,000 to 67,000 feet at coordinates (720 nmi N, 200 nmi E). A secondary area of moderate intensity at 60,000 to 65,000 feet was forecast for (660 nmi N, 400 nmi W).

#### Pilot Report.

Very light turbulence was encountered on climbout at 61,000 feet about 128 miles north of Ramey. No more turbulence was found until about 500 miles to the north of Ramey near the primary forecast area where some very light turbulence was found at 62,000 feet and between 57,000 and 59,000 feet. While making a turn, one patch of light intensity was encountered at 56,000 feet. This area appeared to be along the western edge of the cold front. On the way back to Ramey, about 20 seconds of light turbulence was encountered at 60,000 feet at a point about 340 miles north-northeast of Ramey. The weather below was broken cumulus and cirrus just north of Ramey, then mostly scattered alto-cumulus until reaching the primary turbulence area where there was broken cumulus and cirrus which were solid to the east in what appeared to be the frontal zone.

# Appendix IX





## Appendix IX

Test 151  
23 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

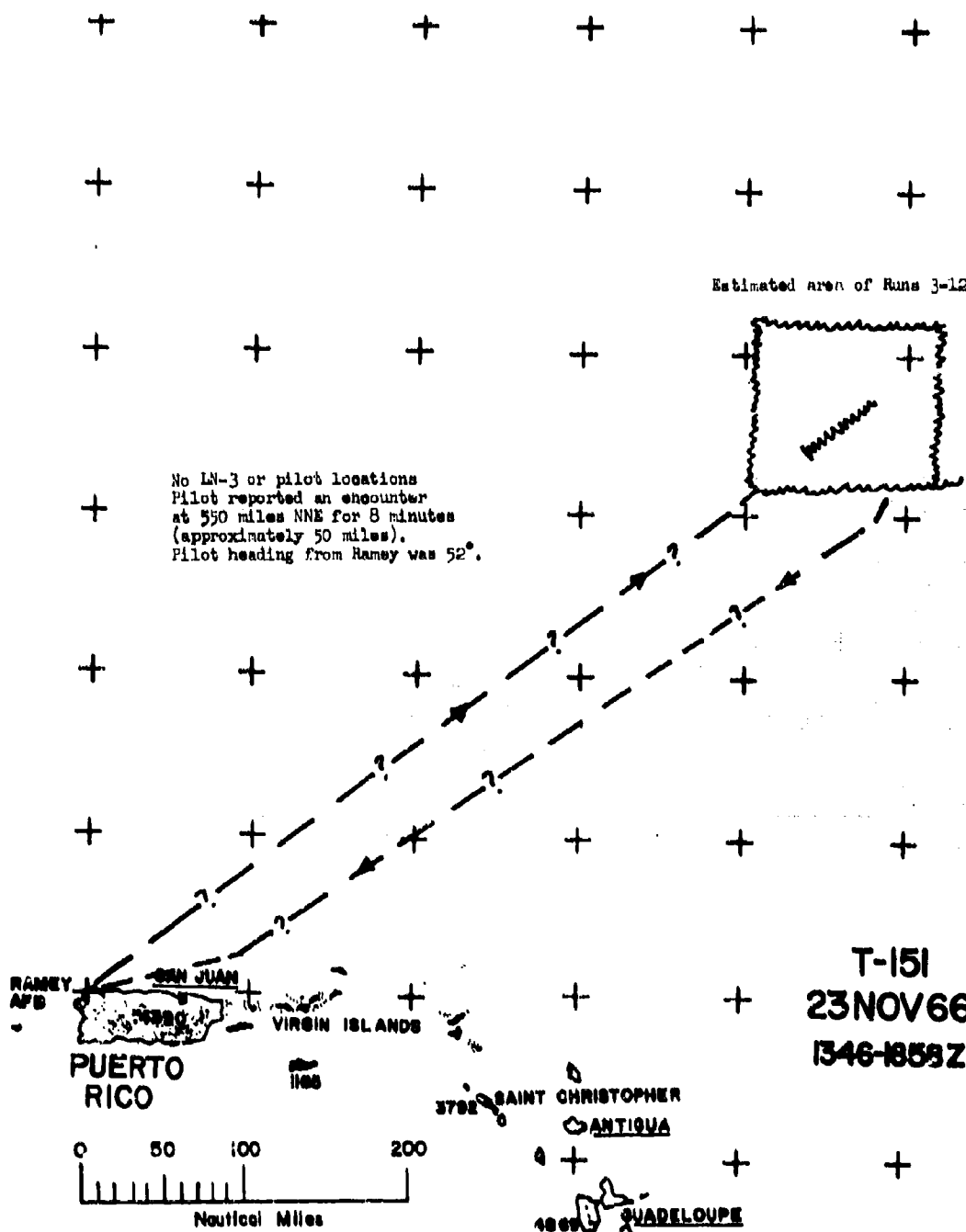
#### Meteorological Summary.

A surface low pressure area and associated cold front was situated about 600 miles to the north of Ramey with a trough aloft over the surface low. Maximum winds were 65 knots over San Juan at 44,000 feet. Turbulence was forecast in the frontal zone area.

#### Pilot Report.

On climbout, light turbulence was encountered at 30,000 to 35,000 feet, 40,000 to 43,000 feet and 48,000 to 49,000 feet. Turbulence was encountered at 54,500 feet about 550 miles north-northeast of Ramey. The intensity increased to moderate over and slightly to the west of the front. The turbulence was roughest on flying crosswind when at least eight minutes of moderate turbulence was experienced. The pilot hesitated about going through the same area again. Cirrus clouds with cumulus buildups were present over the front and to the east, but the cloud system became scattered-to-broken west of the front. Light turbulence was found at 60,000 feet over the center of the area of moderate turbulence at 54,500 feet. Light turbulence was also found over a stretch of about 80 miles at 57,000 feet on the return trip to Ramey.

# Appendix IX



## Appendix IX

Test 152  
24 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

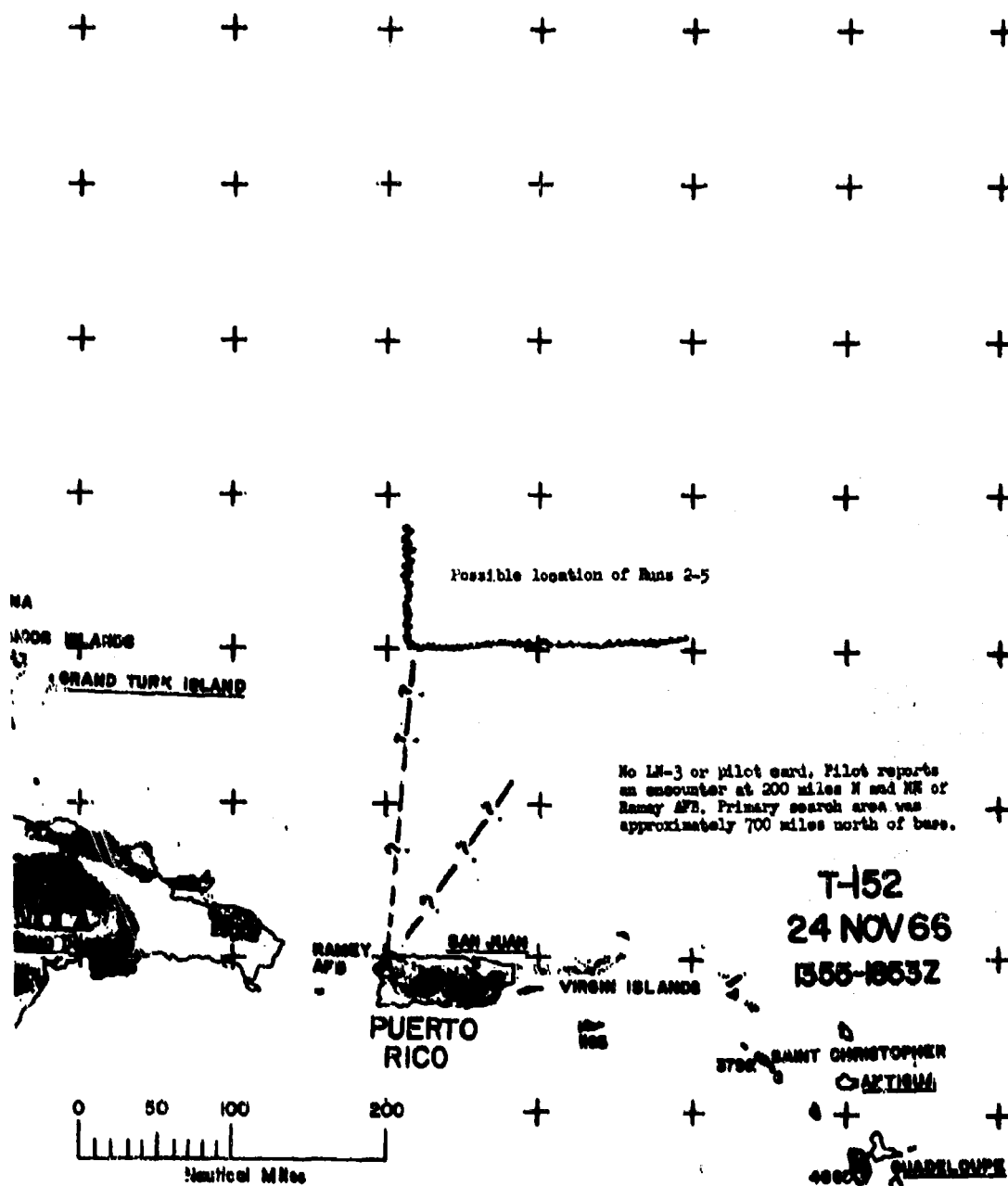
#### Meteorological Summary.

Low pressure at the surface and trough aloft were situated in an area between coordinates (690 to 990 nmi N) and (400 nmi E to 170 nmi W) with a jet stream aloft over the area. Maximum winds were 85 knots at 40,000 feet over Grand Turk. Turbulence was forecast in the area of the jet and trough aloft.

#### Pilot Report.

Fairly constant very light to light turbulence was found between 50,000 and 55,000 feet for a distance of about 200 miles in the area north and northeast of Ramey. However none was found farther on in the forecast area at any altitude up to 68,000 feet. On the return trip, very light turbulence was again found at the same altitude and in the same general area as that experienced while flying out. Considerable broken-to-overcast cirrus with cumulus buildups were present throughout.

# Appendix IX



## Appendix IX

Test 153  
28 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

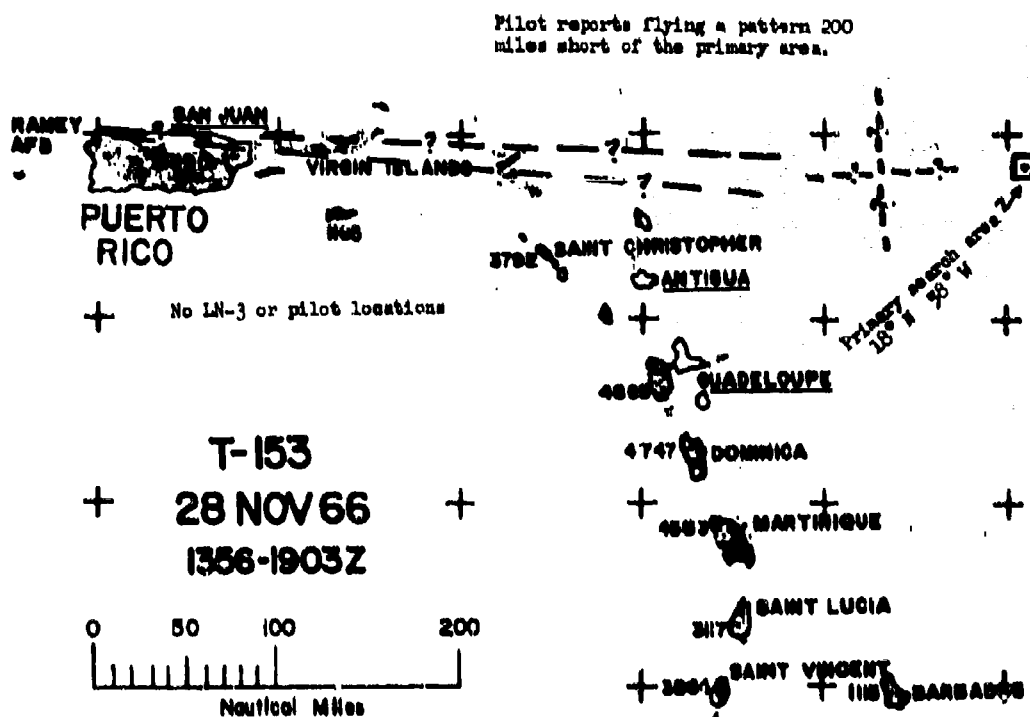
#### Meteorological Summary.

Pressure was high at the surface with a ridge aloft over the area; strong wind shear occurred over the San Juan area between 100 and 70 mb where winds decreased from 30 knots to near calm. The forecast called for a primary area of moderate turbulence between 50,000 and 65,000 feet at coordinates (30 nmi S, 510 nmi E). A secondary area of light to moderate turbulence between 50,000 and 60,000 feet was forecast for (450 nmi N, 510 nmi E).

#### Pilot Report.

Light turbulence was experienced during climbout at 30,000 to 33,000 feet, 37,000 to 38,000 feet, 47,000 to 49,000 feet, and at 60,500 feet over St. Thomas. Consistent light turbulence was encountered starting at 58,700 feet about 100 miles short of the primary forecast area. A search pattern was made in the area, and the turbulence was continuous, although very light, on the east-west leg, but spotty with only three to five patches on the crosswind leg. None was found in the primary forecast area. On the return trip, very light turbulence was again found in the same general area of the Virgin Islands. Its duration was three to five minutes at 63,500 feet centered at a point about 45 miles east of St. Croix. Light turbulence was also encountered for about five minutes at 55,000 feet along the south coast of Puerto Rico directly south of San Juan. The weather over St. Thomas was scattered-to-broken alto-cumulus and only scattered alto-cumulus in the area of continuous light turbulence.

# Appendix IX



## Appendix IX

Test 154  
29 Nov. 1966  
Ramey AFB, Puerto Rico

### FLIGHT DESCRIPTION

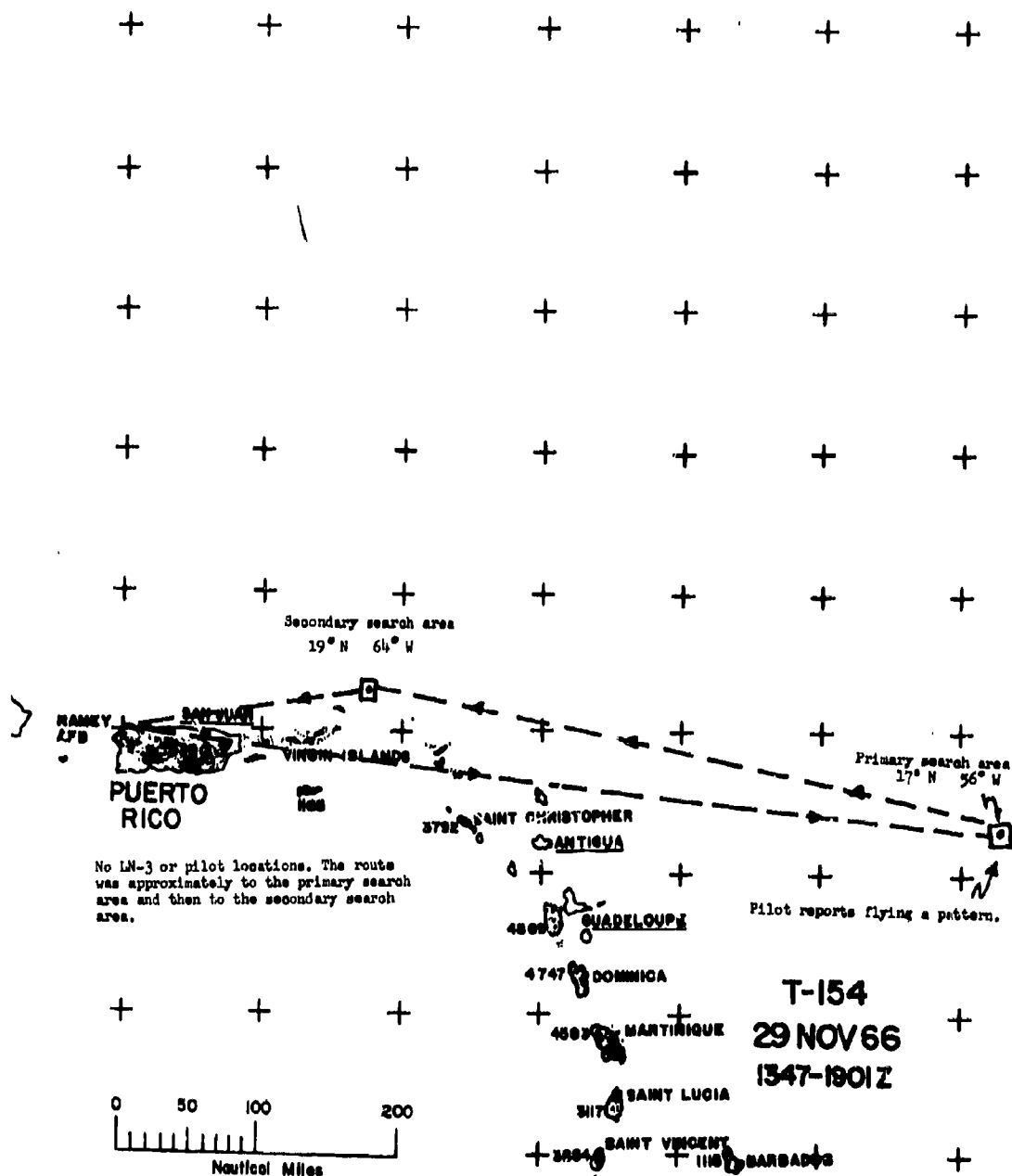
#### Meteorological Summary.

A trough of low pressure at the surface and aloft with a cold front was situated across eastern Cuba northward through the Bahamas. A fairly strong diverging flow at 100 mb existed from Hispaniola eastward. Maximum winds over the area were about 60 knots from the north at 40,000 feet over Guadeloupe. A primary area of light to moderate turbulence was forecast for altitudes of 50,000 to 65,000 feet for an area centered around (90 nmi S, 630 nmi E) or about 300 miles east-northeast of Antigua. A secondary area of light turbulence was forecast for the same altitude range at coordinates (30 nmi N, 170 nmi E) or just to the east of San Juan.

#### Pilot Report.

Climbing out, light turbulence was encountered for six minutes at 62,500 feet in the St. Thomas area. No turbulence was found between St. Thomas and the primary area. In the primary area, the pilot made a slow descent from maximum altitude to 52,000 feet and found no significant turbulence. However, about 60 miles to the west, light turbulence was found at 55,000 feet, but the turbulence could not be found upon turning around and flying through the area again. Further to the west near the St. Thomas area about five minutes of light turbulence was found at 52,500 feet. In the secondary forecast area, a descent was made from maximum altitude and very light turbulence was found at 65,000 feet and at 62,000 feet - then none down to 52,000 feet where about two minutes of light turbulence was found. Another patch of light intensity was encountered at 50,500 feet. There was broken-to-overcast cirrus with scattered cumulus in the St. Thomas turbulence area. Otherwise only scattered cumulus and alto-cumulus.

Appendix IX





Appendix IV

Test 159  
3 Jan. 1967  
Edwards AFB, Calif.

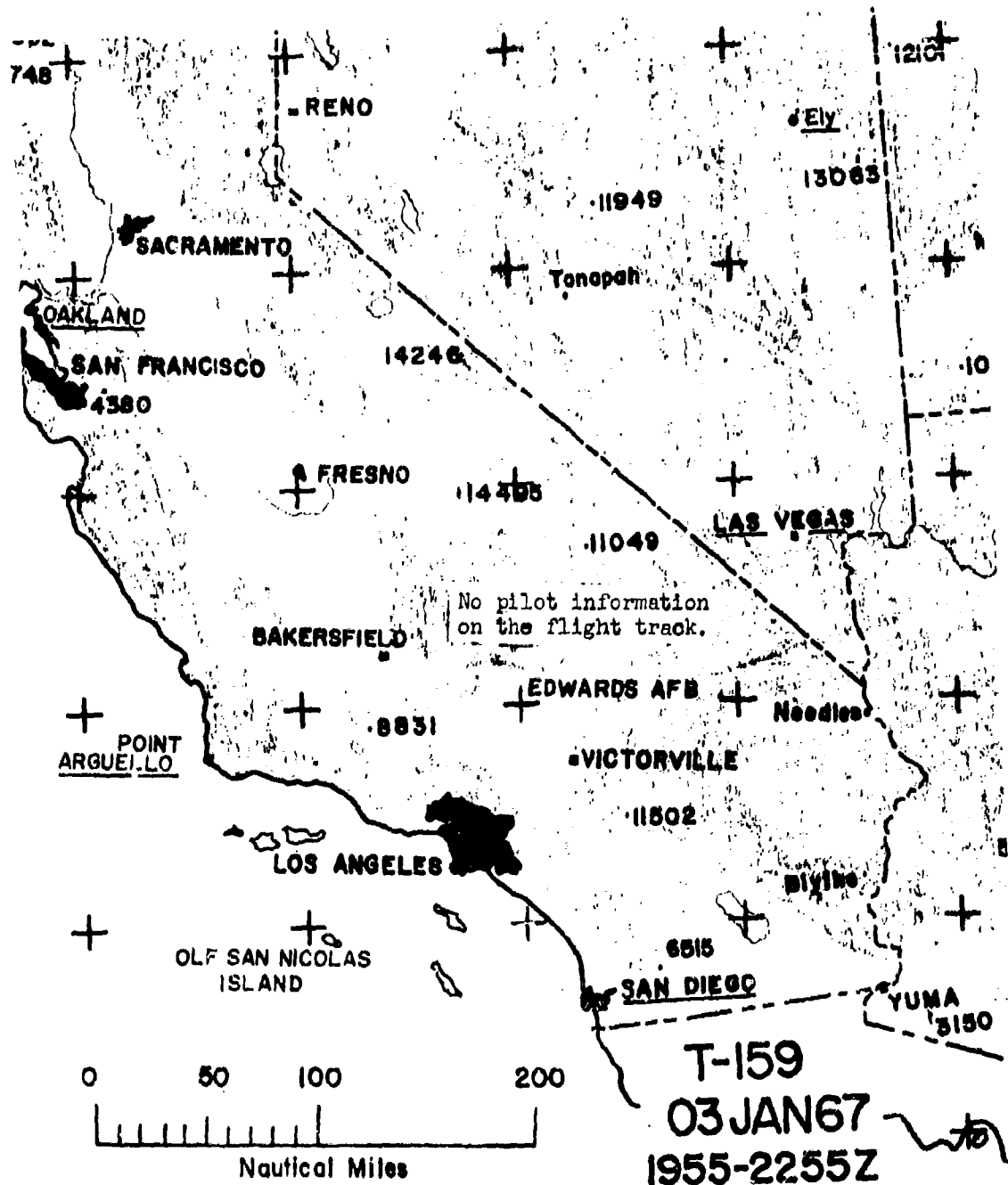
FLIGHT DESCRIPTION

Meteorological Summary.

Pressure was high at the surface over Nevada and Utah; trough aloft extended from Minnesota south-southwestward to New Mexico and west Texas. Winds aloft over California were northwesterly. A jet stream was situated to the east over Utah and Arizona.

Pilot Report.

No turbulence was noted during the entire flight. The weather was clear inland and only scattered stratus occurred off shore.



## Appendix IX

Test 160  
4 Jan. 1967  
Edwards AFB, Calif.

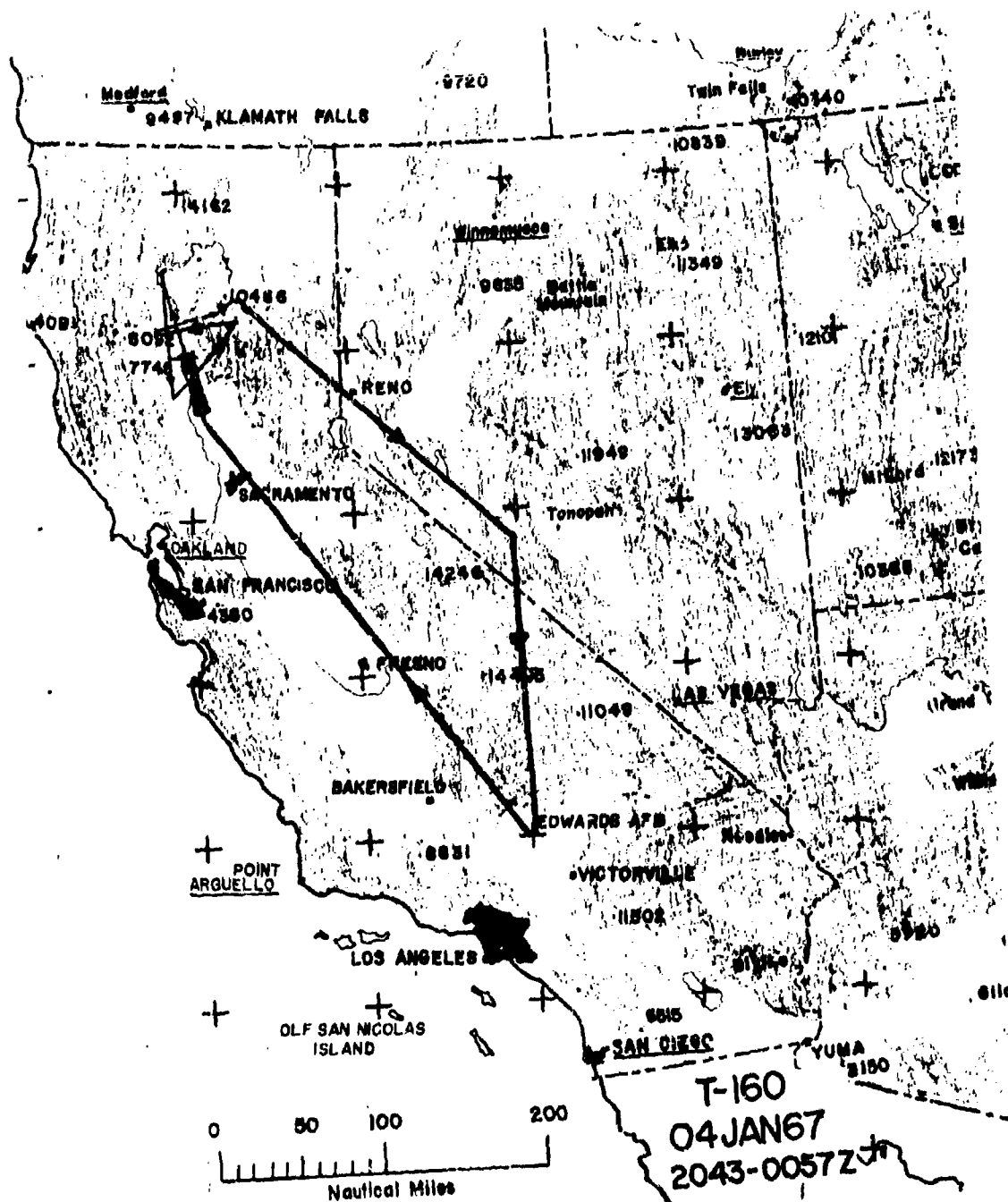
### FLIGHT DESCRIPTION

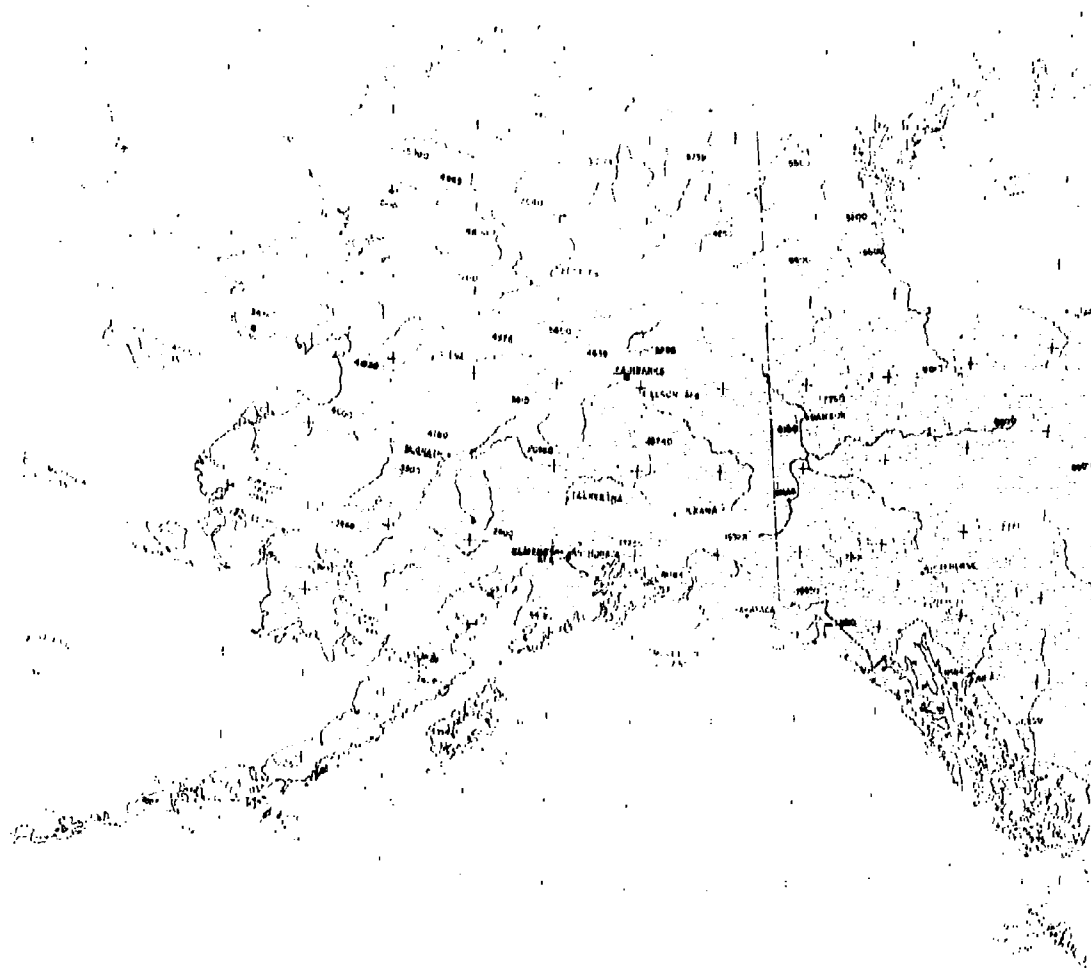
#### Meteorological Summary.

In a strong westerly flow aloft over northern California and Oregon, jet stream speeds increased from 100 knots at 43,000 feet over the San Francisco area to 150 knots at 35,000 feet in southern Oregon. At altitudes above 60,000 feet, the speeds decreased rapidly and the direction shifted from westerly to easterly over northern California. The primary forecast area was for light to moderate turbulence around 64,000 feet near Red Bluff based on the vertical wind direction shear near this level.

#### Pilot Report.

The first turbulence encountered was just south of Red Bluff at 60,000 feet. It was light to moderate in intensity. The top of the layer was at 62,000 feet, the bottom at 59,000 feet. Between Red Bluff and Reno, light to moderate turbulence was encountered at 58,500 feet, and about 13 minutes of moderate turbulence ( $\pm 0.7g$ ) was found at 54,000 feet east of the Sierra Nevada between Reno and Coaldale. It was as smooth as glass east of Coaldale and on the return leg to Edwards at 64,000 feet. There was a solid cirrus overcast throughout most of the area.





Elmendorf AFB, Alaska, Operational Area Map

## Appendix IX

Test 163  
14 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, pressure was low over the Gulf of Alaska, and a high pressure area was centered over the Yukon with a ridge extending westward over Alaska; a trough aloft over the Gulf extended up to above 40,000 feet. Maximum winds in the Anchorage - McGrath area were 95 knots at around 100,000 feet. Maximum winds at flight altitudes were 50 knots. Offutt AFB Global Weather Central predicted a primary area of light turbulence at (550 nmi S, 120 nmi W), or approximately in the area of the trough aloft.

#### Pilot Report.

Very light turbulence was encountered at 54,000 feet about 300 miles south of Elmendorf. After proceeding to the primary forecast area, a spiral descent was made from 62,000 to 52,000 feet, and no turbulence was found. Very light turbulence was next encountered just south of the Aleutian Chain at 59,500 feet. Its duration was about 10 minutes. Another stretch of very light turbulence of about the same duration was encountered just before reaching Cape Newenham. Upon turning east at the Cape and proceeding back toward Elmendorf, about 12 minutes of very light turbulence was found at 61,500 feet; further on, about seven minutes of very light turbulence was encountered at 58,700 feet. This latter layer was very thin - only about 300 feet. Descending at Elmendorf, another patch of very light turbulence was found at 53,500 feet. Photographs show solid cirrus clouds below in the area where turbulence was first encountered but broken alto-cumulus and scattered cirrus in the primary forecast area. It was mostly clear along the route between Cape Newenham and Elmendorf AFB.

Map of Alaska showing a flight path from Anchorage to Kodiak Island. The path is marked with a line and arrows, passing through Elmendorf, King Salmon, and Kodiak. Various geographical features and elevation points are labeled, including Fairbanks, Talkeetna, Denali, and numerous lakes. A scale bar at the bottom indicates distances up to 200 nautical miles.

Key locations and features labeled on the map include:

- Fairbanks
- Talkeetna
- Denali
- McGrath
- Elmendorf
- Anchorage
- King Salmon
- Kodiak Island
- Nunivak Island
- Cold Bay
- Barrow
- King
- Queen
- Princess
- Admiral
- General
- Major
- Captain
- Lieutenant
- Ensign
- Midshipman
- Officer
- Enlisted
- Naval
- Army
- Air Force
- Marine
- Civilian
- Government
- Private
- Public
- Commercial
- Industrial
- Scientific
- Medical
- Legal
- Religious
- Educational
- Cultural
- Recreational
- Historical
- Geographical
- Political
- Economic
- Social
- Environmental
- Technological
- Artistic
- Literary
- Academic
- Professional
- Vocational
- Technical
- Managerial
- Executive
- Administrative
- Operational
- Support
- Logistical
- Communications
- Transportation
- Infrastructure
- Utilities
- Services
- Healthcare
- Education
- Research
- Development
- Innovation
- Progress
- Change
- Growth
- Expansion
- Contraction
- Stagnation
- Regression
- Decline
- Disaster
- Emergency
- Crisis
- Conflict
- War
- Peace
- Truce
- Treaty
- Agreement
- Contract
- Deal
- Bargain
- Exchange
- Trade
- Commerce
- Industry
- Business
- Market
- Finance
- Banking
- Insurance
- Investment
- Capital
- Money
- Wealth
- Poverty
- Debt
- Interest
- Profit
- Loss
- Gain
- Benefit
- Cost
- Expense
- Revenue
- Income
- Salary
- Wage
- Pay
- Compensation
- Benefits
- Pension
- Retirement
- Healthcare
- Insurance
- Investment
- Capital
- Money
- Wealth
- Poverty
- Debt
- Interest
- Profit
- Loss
- Gain
- Benefit
- Cost
- Expense
- Revenue
- Income
- Salary
- Wage
- Pay
- Compensation
- Benefits
- Pension
- Retirement

T-163  
14 JAN 67  
1858 2323Z

## Appendix IX

Test 164  
16 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

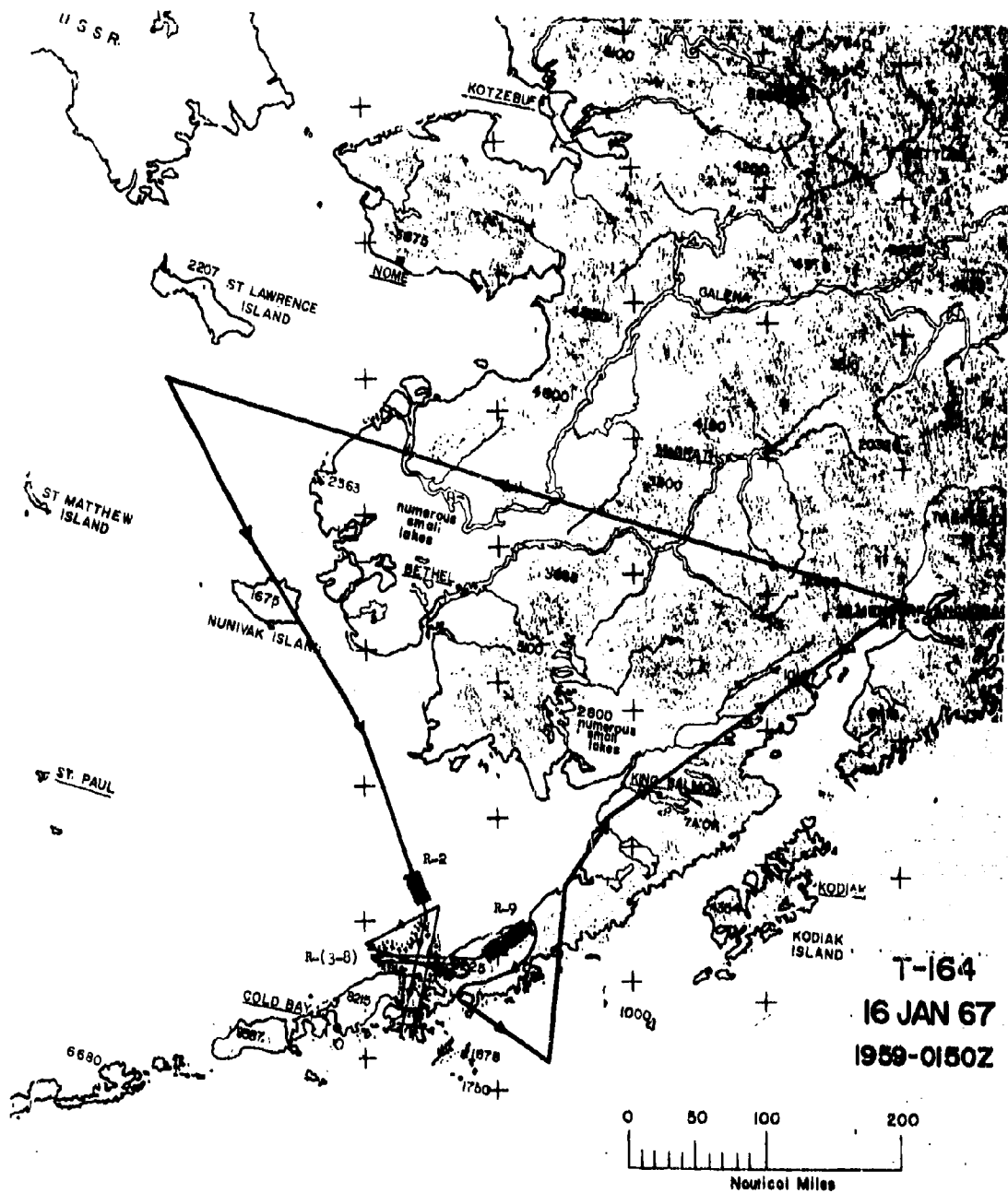
#### Meteorological Summary.

There was a deep low-pressure area at the surface and a strong trough aloft over the western Aleutians. An occluded front oriented northwest-southeast ran through Elmendorf and there was a ridge aloft over the Gulf of Alaska. Two jet streams were present, a southerly tropospheric jet at 28,000 feet with maximum winds of 100 knots at St. Paul Island, and a stratospheric circumpolar jet centered at around 105,000 feet from the west-northwest with maximum speeds of nearly 130 knots. The primary forecast area for turbulence was just to the south of St Lawrence Island.

#### Pilot Report.

No significant turbulence was encountered at any altitude enroute or in the primary forecast area. However, upon proceeding southeastward toward Cold Bay, very light turbulence was first encountered at 62,000 feet just north of Nunivak Island. In the Cold Bay area on the Aleutian Chain, light to moderate turbulence was found at 51,000 feet, and a search pattern was made. The area of turbulence seemed to be elongated in the east-west direction and was quite short in the north-south direction. Further on, about seven minutes of very light turbulence was found at 54,000 feet on the south side of the Chain. The cloud conditions along the route were low broken to overcast until reaching the main turbulence area where there was also a high cirrus overcast. Large abrupt breaks occurred in the cirrus deck over the Aleutian Chain, indicating possible wave action.





## Appendix IX

Test 165  
17 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

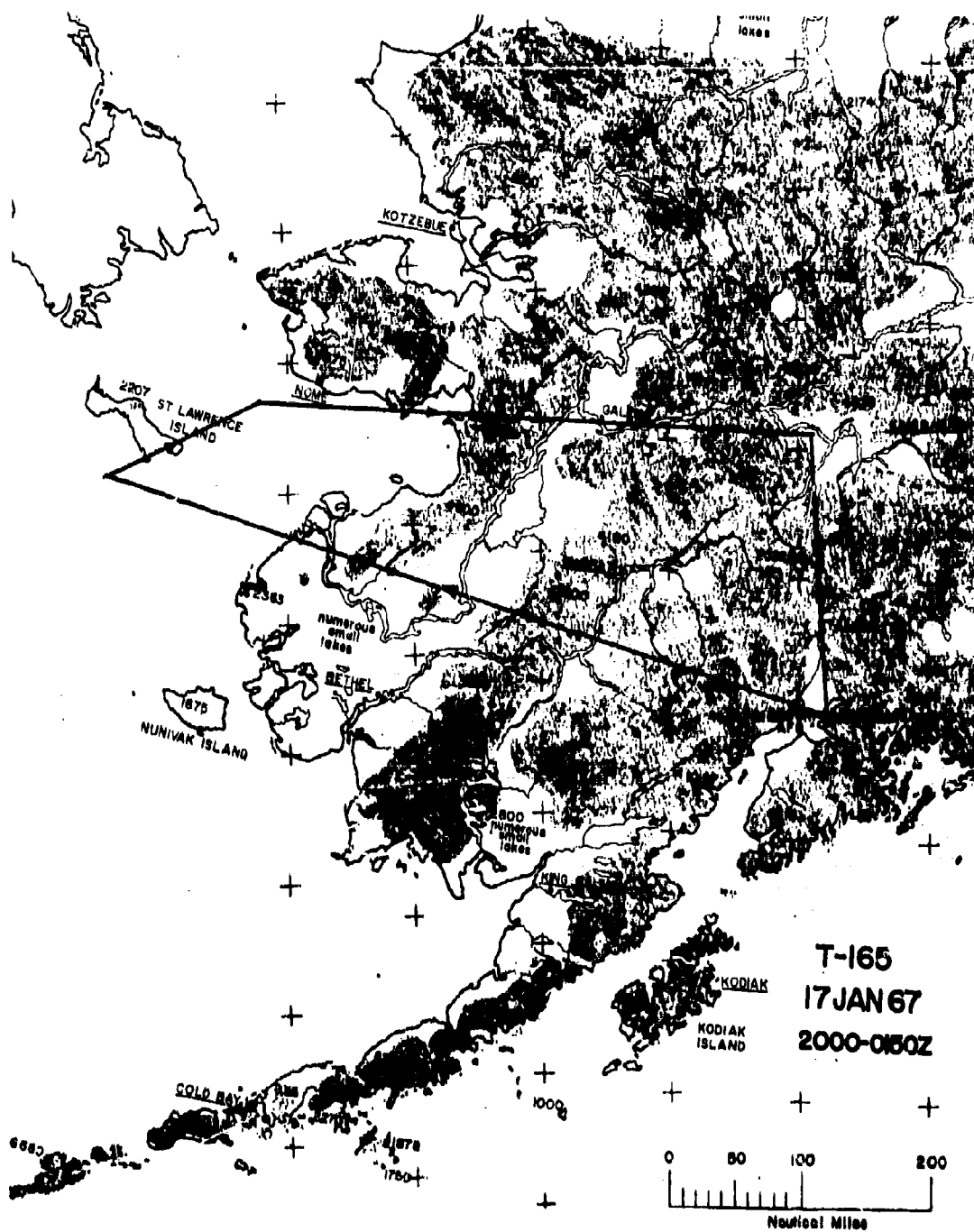
#### Meteorological Summary.

A deep low-pressure area was centered over the Aleutian Chain. An occluded front was oriented northwest-southeast through Cold Bay. There was a high-pressure area centered over Yukon with sharp ridge aloft over the eastern portion of the Gulf of Alaska. Maximum winds aloft were 120 knots at 92,000 feet in the Fairbanks area. Winds at flight altitude were about 30 to 35 knots.

#### Pilot Report.

The first significant turbulence encountered was at 57,800 feet in the area to the northeast of Bethel including about ten minutes of light intensity. A thin band of intermittent light turbulence of eight minutes duration was found between 53,000 and 54,000 feet along the flight path due north of Bethel. No turbulence could be found between 50,000 and 62,000 feet in the primary forecast area south of St. Lawrence Island. About four minutes of very light turbulence was found at 60,500 feet near Moses Point. On the way to Cape Romanzof, there was a solid cirrus overcast with tops at 30,000 feet north of Bethel. A haze layer was observed with a sharp top at 62,000 feet in the primary forecast area. There was also a solid deck of strato-cumulus below.

Appendix IX



## Appendix IX

Test 166  
25 Jan. 1967  
Elmendorf AFB, Alaska

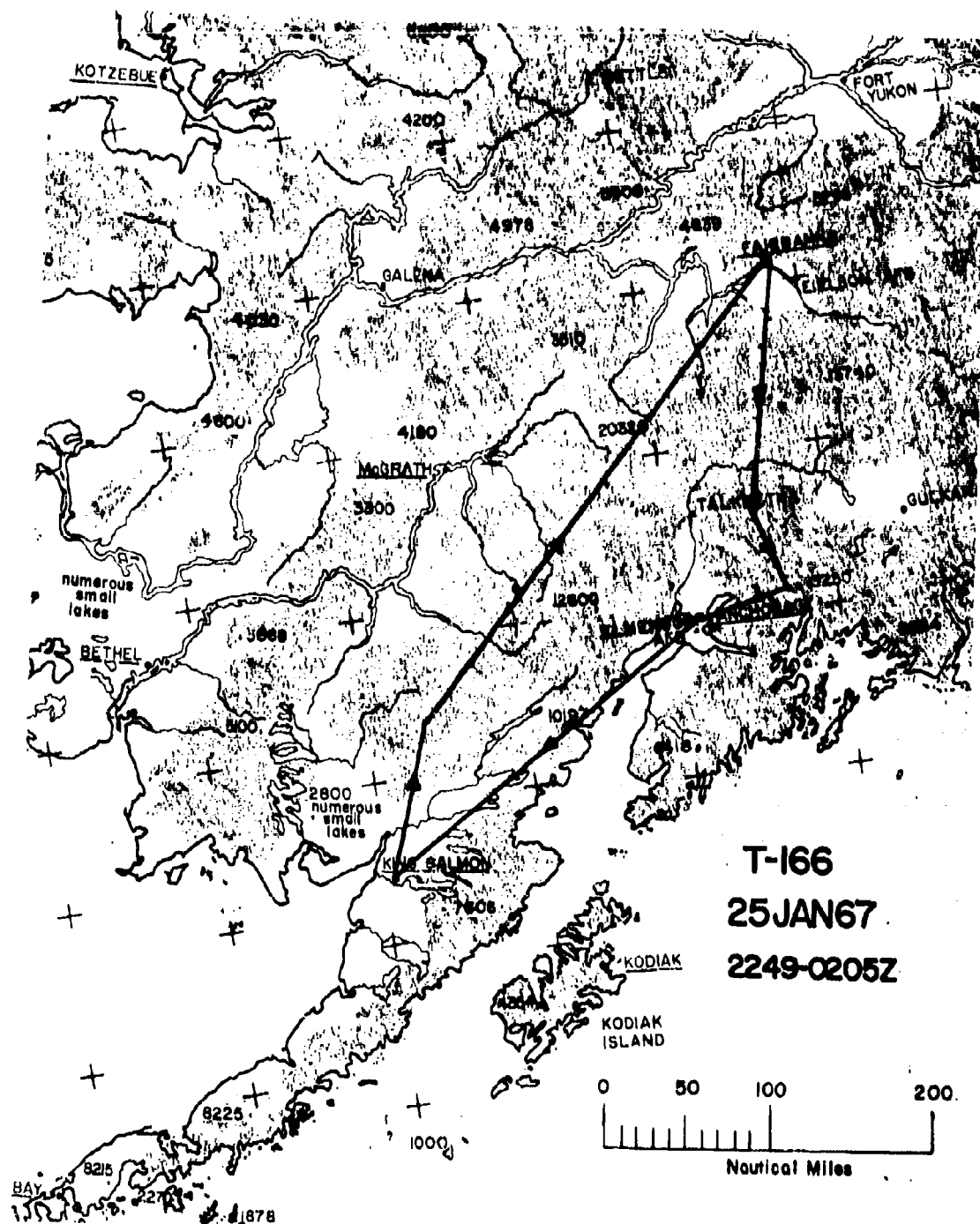
### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, high pressure covered Alaska and western Canada. A closed high aloft centered over the Aleutians was accompanied by light winds up to 67,000 feet (50 mb). Maximum winds were associated with the stratospheric circumpolar jet stream at 100,000 feet with speeds of 100 knots. Offut Global Weather Central predicted a primary area of moderate turbulence between 57,000 and 60,000 feet near St. Paul Island (map coordinates 250 nmi S, 580 nmi W) and a secondary area of intermittent moderate turbulence between 66,000 and 68,000 feet near King Salmon (map coordinates 130 nmi S, 170 nmi W). In this area there was some horizontal shear as the winds increased from 4 knots at King Salmon to 40 knots at Fairbanks. It was also observed that the isotherms between 150 and 50 millibars become more perpendicular to the flow in the area east of Anchorage toward Yakutat.

#### Pilot Report.

As only a short flight could be made due to predicted bad weather at Elmendorf, the primary area was eliminated from the flight plan. Instead, the secondary area was included as well as a short leg east of Anchorage. Light turbulence was encountered at 54,000 feet on climbout. However, no turbulence could be found in the secondary forecast area where the weather was clear. A little very light turbulence was found at 60,500 feet near Fairbanks, but the best turbulence, although still light, was found at 54,000 feet east of Anchorage. After running a nine-minute leg the aircraft was out of the turbulent area.



T-166  
25 JAN 67  
2249-0205Z

## Appendix IX

Test 167  
26 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

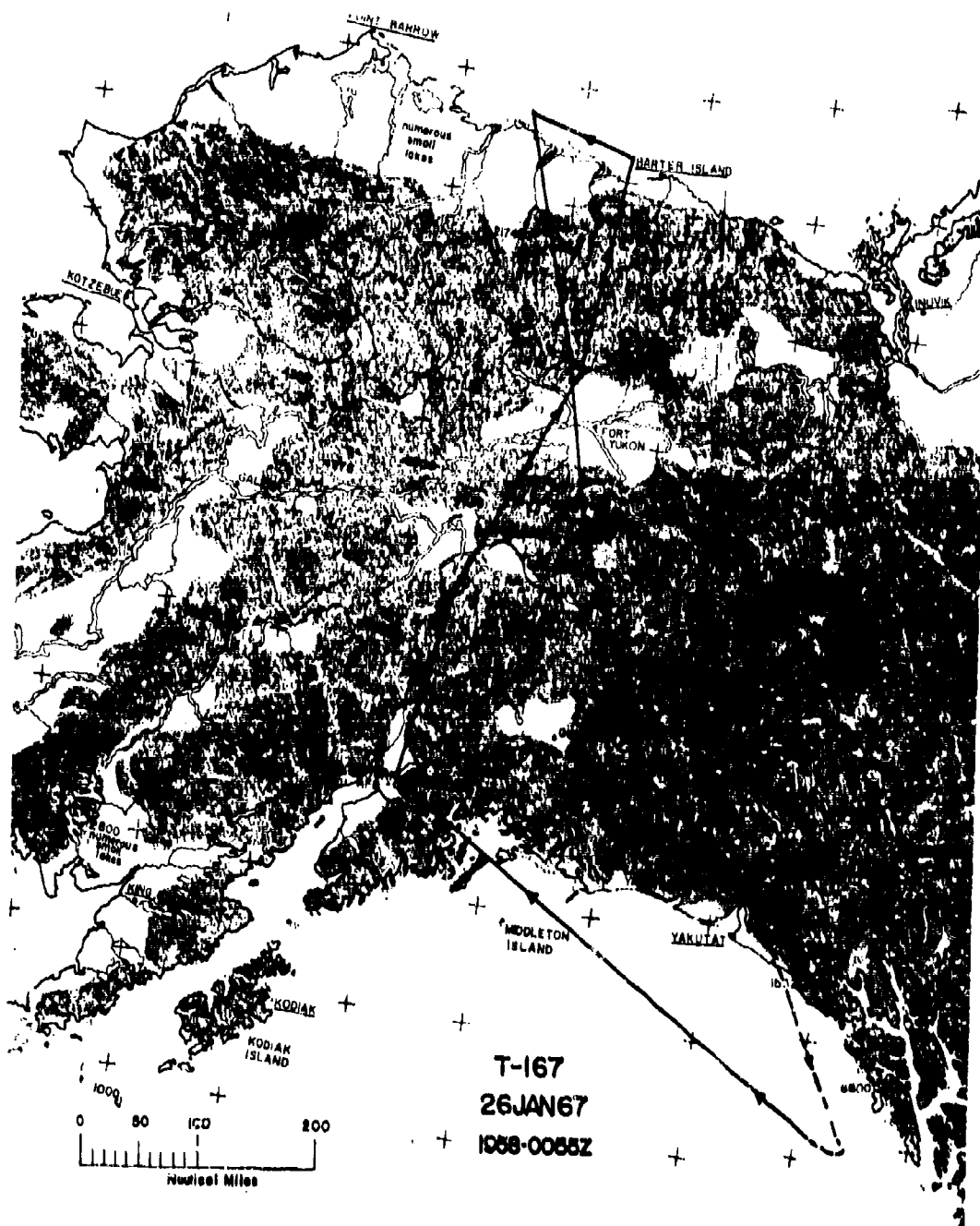
#### Meteorological Summary.

At the surface, high pressure was centered over Alaska and the Yukon. A closed high aloft centered over the Aleutians extended almost up to 100 millibars. There were two jet streams. The tropospheric jet was from the northeast at 18,000 feet where winds flowing around the closed high pressure area to the west reached speeds of 68 knots at King Salmon. The stratospheric circumpolar jet was centered at 100,000 feet with maximum speeds around 80 knots. At flight altitudes, the winds were light over southern Alaska, about 15 to 20 knots, but increased to 35 knots in the Fairbanks area and to 60 knots at Point Barrow on the north coast. Offut Global Weather Central predicted a primary area of moderate turbulence at 58,000 to 59,000 feet at map coordinates (490 nmi N, 170 nmi E), which is near Barter Island. A secondary area of moderate turbulence was forecast for 55,000 to 58,000 feet at map coordinates (70 nmi S, 290 nmi E), which is at Yakutat. Due to unusually uniform temperatures at flight altitudes over the entire area, the project personnel did not expect any turbulence.

#### Pilot Report.

No significant turbulence was found. It was as smooth as glass in both forecast areas. A few patches of very light turbulence were found at 48,000 to 52,000 feet between Barter Island and Yakutat, and no other turbulence was found. At low levels, light to moderate turbulence was encountered between 26,000 and 12,000 feet while descending into Elmendorf. The sky was mostly clear south of Fairbanks, then increasing scattered-to-broken thin cirrus and finally solid cirrus overcast was encountered in the Barter Island area with some thin veils of cirrus up to 48,000 feet. On the southbound leg, there was a thin cirrus overcast in the area east and south of Fairbanks and solid cirrus below along the coast and over the Gulf.

Appendix IX



## Appendix IX

Test 168  
27 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

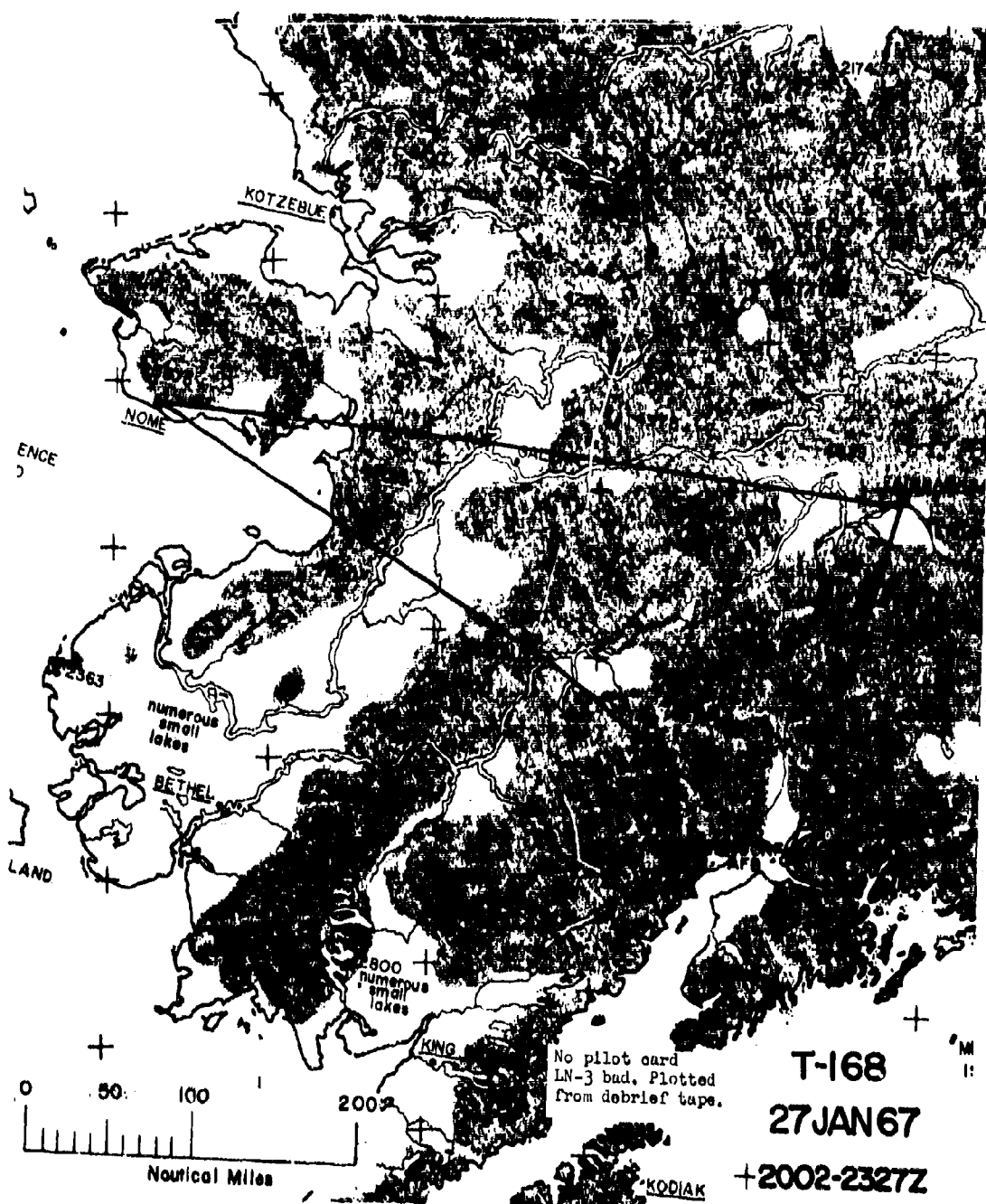
#### Meteorological Summary.

Pressure was high at the surface over Alaska with a ridge aloft over the Aleutians and Bering Sea. A trough was present aloft over the eastern portion of the Gulf of Alaska centered near Yakutat. The flow aloft was northerly up to 40,000 feet between the ridge and trough. Maximum speeds were 75 knots. At higher levels, the winds were light over southern Alaska, but northwesterly at 45 knots in the Point Barrow area. The forecast called for turbulence in both the Nome and Point Barrow areas based on a trough in the isothermal pattern over western Alaska and horizontal and vertical shear in the Point Barrow area.

#### Pilot Report.

Moderate turbulence was encountered on climbout at 49,000 feet. Further along the route to Fairbanks, a patch of light-to-moderate turbulence was found at 59,300 feet, but it could not be located again upon flying through the area a second time. Near Galena, between Fairbanks and Nome, a patch of very light turbulence was found at 57,500 feet. Further on toward Nome, patches of light turbulence were found at 57,000 and 59,000 to 60,000 feet, but none was consistent. Over Nome during a spiral descent from maximum altitude, light turbulence was found at 60,500 and 55,000 feet and very light at 52,000 feet. Between Nome and McGrath, about 10 minutes of steady light-to-moderate turbulence was found at 57,000 feet. After running out of this turbulence, while proceeding southeastward, the pilot climbed to 60,000 feet and encountered it again. The pilot was of the opinion that the turbulent layer was sloping upward toward Anchorage.





## Appendix IX

Test 169  
30 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

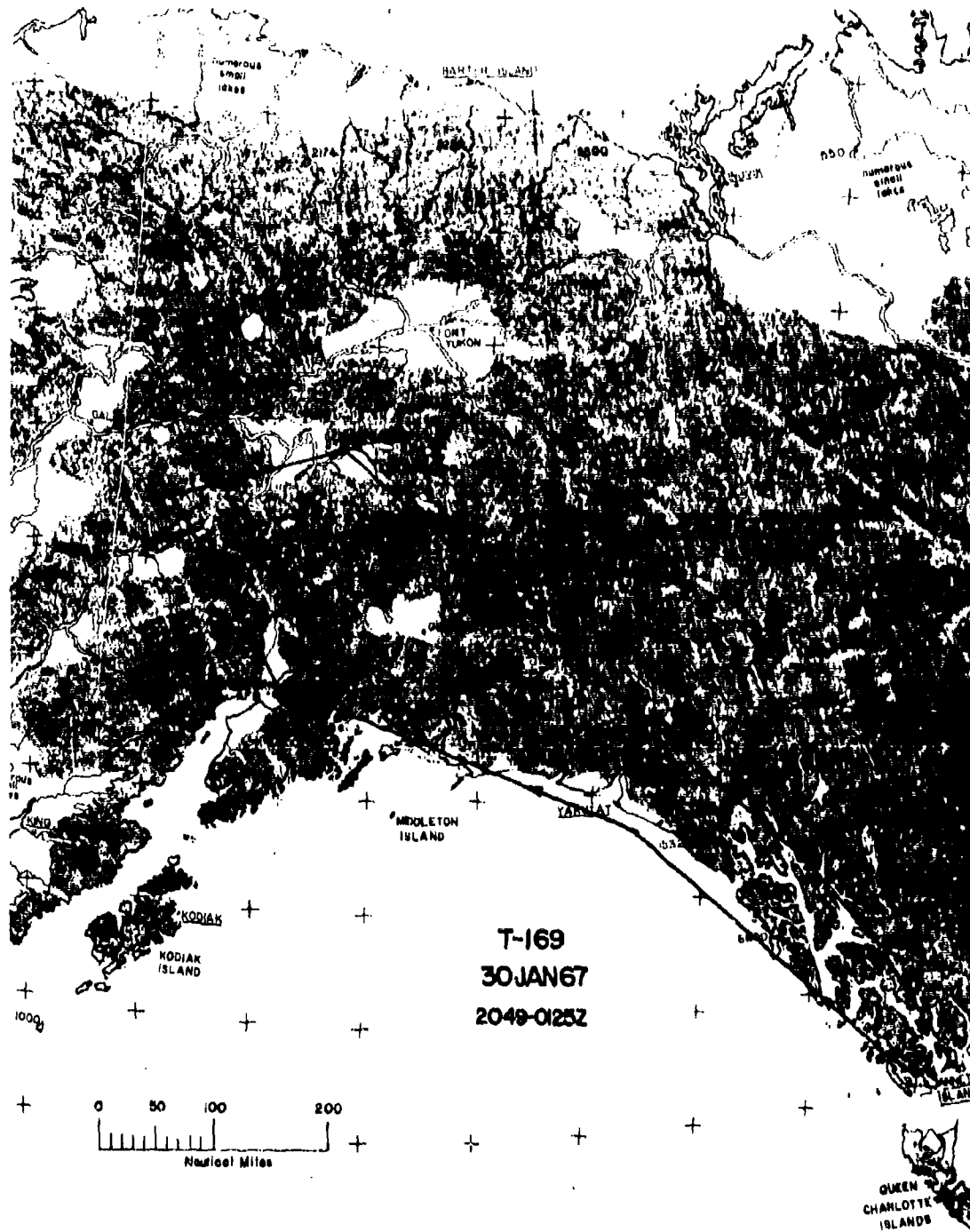
#### Meteorological Summary.

Pressure was high at the surface over Alaska and northwest Canada, and low in the Gulf. There was a trough aloft over the Gulf with a ridge over the western Aleutians. The strongest winds were associated with the stratospheric circum-polar jet stream at 100,000 feet in which maximum speeds reached 125 knots. At flight altitudes, winds were strongest over central and northern Alaska with speeds of about 60 knots. There was very little indication upon which to base a prediction of turbulence so the flight plan was based on horizontal shear in the area between Anchorage and Galena, vertical shear of 3 knots per thousand feet at Fairbanks, and a small temperature gradient across the flow over southeastern Alaska -- especially at 150 mb.

#### Pilot Report.

Only a few patches of very light turbulence were found. The first patch of three minutes' duration was found at 54,000 feet east of McGrath. Another area of very light intensity but of six to eight minutes' duration was found between 49,000 and 51,000 feet just west of Fairbanks. Neither of these areas could be found upon passing through a second time. Another patch of very light turbulence was found at 61,000 feet between Yakutat and Whitehorse and at 59,000 feet over Yakutat on the return flight. Only high thin scattered cirrus clouds were present in the area to the north of Anchorage, and there was a low overcast of stratus and strato-cumulus over most of southeastern Alaska.

Appendix IX



## Appendix IX

Test 170  
31 Jan. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

#### Meteorological Summary.

Pressure was low at the surface in the Gulf of Alaska and high over the Yukon and northern Alaska. A trough aloft over the Gulf extended northward along the Alaska-Yukon border. A ridge was located aloft over the western Aleutians. Maximum winds again were located high up at 100,000 feet in the circumpolar stratospheric jet stream with speeds of 160 knots at Point Barrow. At 60,000 feet, wind speeds increased from 50 knots at Anchorage to 75 knots at Fairbanks and to 122 knots at Point Barrow. Light turbulence was forecast for the Nome, Kotzebue, Point Barrow and Fairbanks areas based on horizontal shear in the Nome area and large vertical shear over the entire route. Both Kotzebue and Point Barrow had a 40- to 50-knot increase in speed between 53,000 and 68,000 feet. However, there was no support for the turbulence forecast based on the isothermal pattern except possibly down around 45,000 feet.

#### Pilot Report.

No turbulence could be found. It was as smooth as glass over the entire route.

Appendix IX



## Appendix IX

Test 171  
1 Feb. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

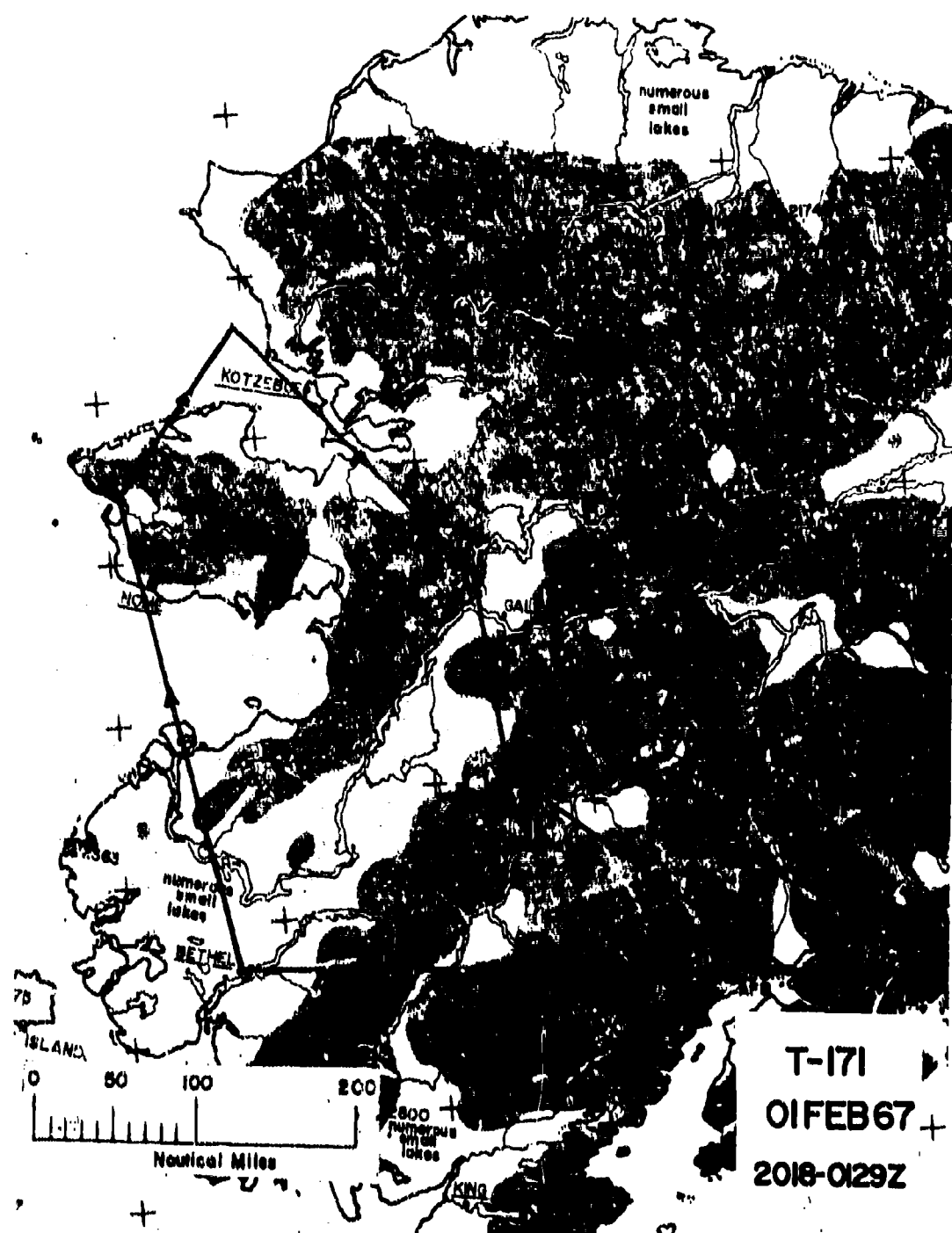
#### Meteorological Summary.

A large low-pressure area was centered in the Gulf of Alaska with a trough aloft over southeastern Alaska and the Yukon. A ridge aloft continued to hold over the western Aleutians. The primary forecast area called for light turbulence between 65,000 and 67,000 feet near Kotzebue (map coordinates 350 nmi N, 240 nmi W). A secondary area of light turbulence between 60,000 and 65,000 feet was forecast near Bethel (map coordinates 10 nmi S, 320 nmi W). Winds over the forecast areas increased from 30 to 40 knots at 150 mb (44,000 feet) to 75 to 95 knots at 50 mb (67,000 feet). There was no significant temperature gradient over the area.

#### Pilot Report.

No significant turbulence was found. It was smooth in both forecast areas. About one minute of very light turbulence was encountered at 59,500 feet approximately 90 miles west of Anchorage. The pilot turned around and was able to fly through the same patch again. Another patch of very light intensity was found at 63,500 feet near Galena. There was an overcast at Anchorage with tops at 26,000 feet, but otherwise it was mostly clear over the entire route.

Appendix IX



## Appendix IX

Test 172  
4 Feb. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

#### Meteorological Summary.

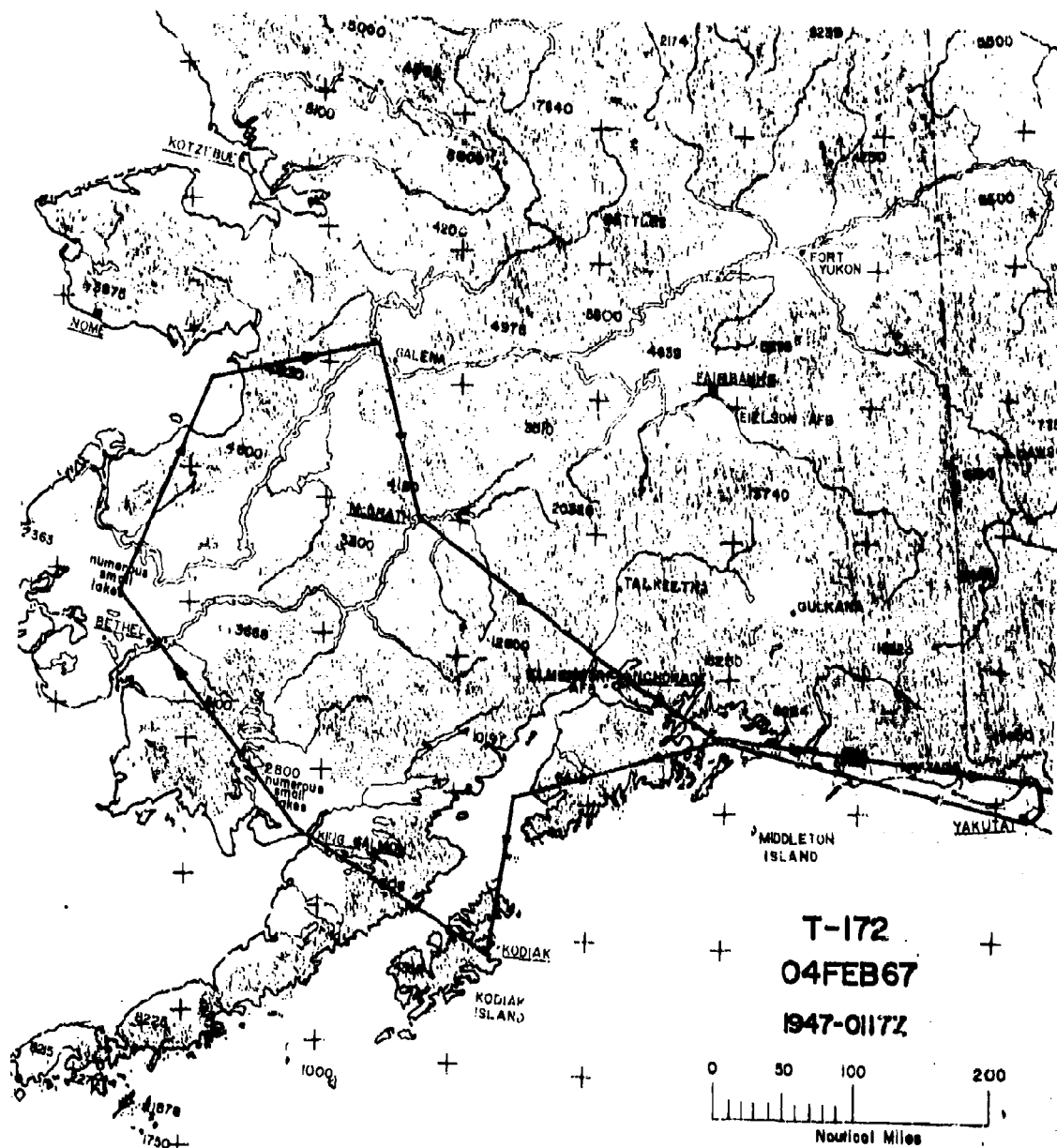
At the surface, pressure was low over southeastern Alaska and the Aleutians with a ridge of high pressure sandwiched in between. There was a ridge aloft. Two jet streams were present, one in the troposphere at 28,000 to 35,000 feet with maximum speeds close to 100 knots near Yakutat. The other, a circumpolar stratospheric jet stream, was centered around 100,000 feet with a maximum speed of 85 knots. A primary forecast area for moderate turbulence between 52,000 and 54,000 feet was located over the Aleutians at map coordinates (370 nmi S, 500 nmi W). However, it was necessary to plan the flight so the aircraft would remain over mainland Alaska. An analysis of the meteorological situation over the mainland indicated that the area toward Yakutat should be included in the flight plan since this was the area of largest temperature gradient along the flow between 100 and 50 mb.

#### Pilot Report.

An area of light choppy turbulence was found just west of Yakutat at 54,000 feet. The area was 2000 feet thick and of five minutes' duration. Upon returning to the area, the turbulence was found again in exactly the same location. Other similar areas of light turbulence were found at 54,000 feet just southeast of Anchorage, at 52,000 feet near Bethel, and at 62,000 feet over McGrath. However, this latter turbulence could not be found upon making a second pass through the area. Low stratus clouds were present along the south coast. Otherwise only high thin cirrus prevailed over the rest of the route.



Appendix IX



## Appendix IX

Test 173  
6 Feb. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

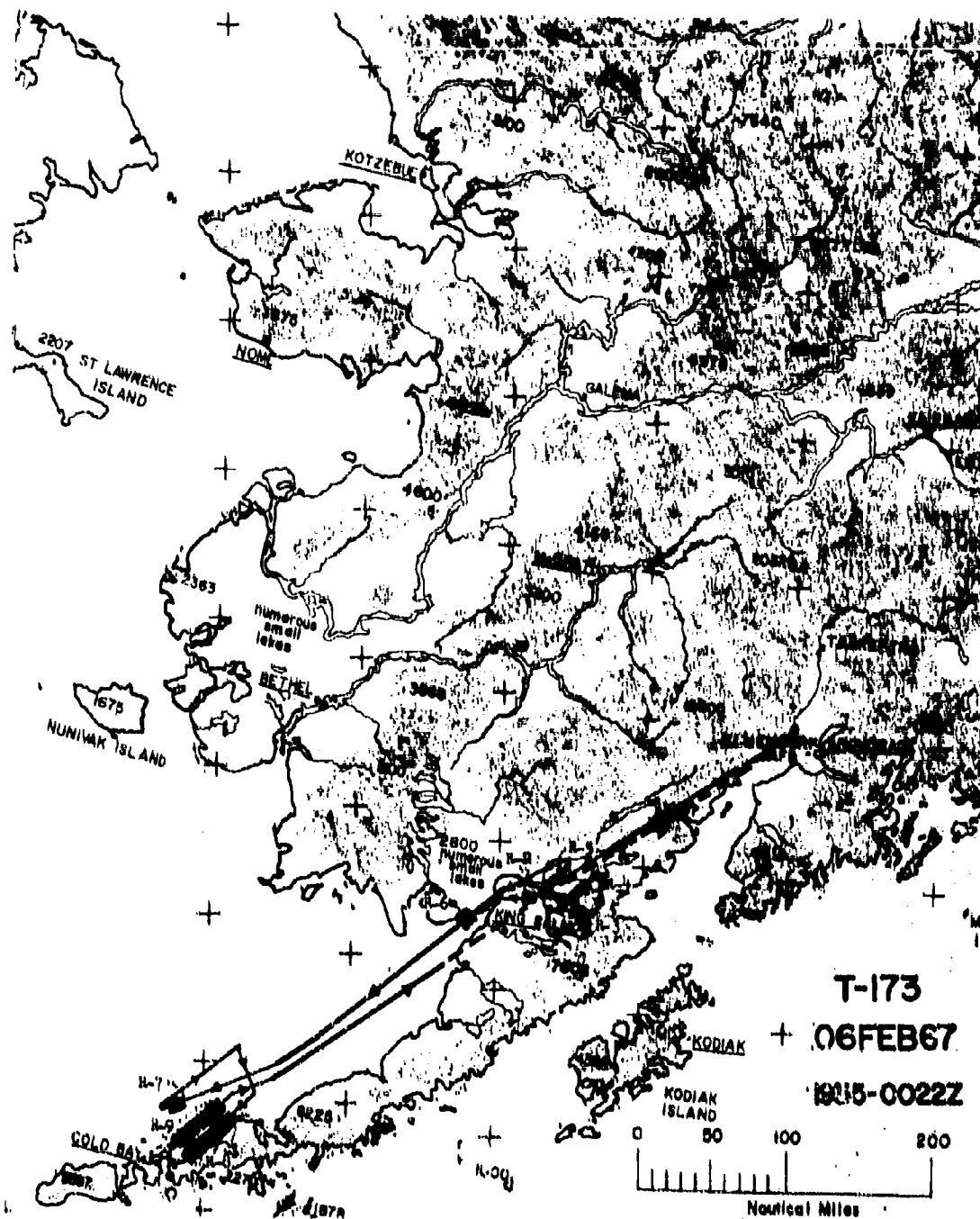
#### Meteorological Summary.

At the surface, there was a deep low-pressure area centered to the north of Cold Bay. It was accompanied by an occluded front oriented approximately through Bethel, King Salmon, and Kodiak. There was a strong ridge aloft centered approximately along the Alaska-Yukon border. Maximum winds aloft were 140 knots at 33,000 feet over Anchorage. A primary area of moderate turbulence between 58,000 and 63,000 feet was forecast by Global Weather Central for the Cold Bay area and a secondary area of light turbulence between 54,000 and 57,000 feet was forecast for the King Salmon area. This forecast from GWC plus the fact that the isotherms crossed the contour lines at a large angle in the same area (especially at 150 and 100 mb) made it appear that turbulence could be predicted with considerable confidence.

#### Pilot Report.

There was a solid overcast on climbout with cloud bases at 3500 feet and tops at 26,000 feet. The first turbulence was encountered about 50 to 60 miles short of King Salmon. It was light in intensity and extended from 51,500 to 54,500 feet. It occurred above a line of high cirrus about 20 miles wide located just south of a solid high deck of cirrus. Both cloud formations were oriented northeast-southwest. There was nothing at forecast altitudes over Cold Bay, but upon descending to 53,000 feet moderate to heavy turbulence (.5g) was encountered. A search pattern was flown in this area. There was a low broken to overcast condition beneath. On the return flight over King Salmon, patches of light turbulence of about five-seconds' duration were found between 52,000 and 55,000 feet. No turbulence was found at higher altitudes up to 67,000 feet. Descending into Elmendorf, moderate turbulence was encountered at 38,000 to 42,000 feet. The top of the overcast was 31,000 feet.

Appendix IX



## Appendix IX

Test 174  
7 Feb. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

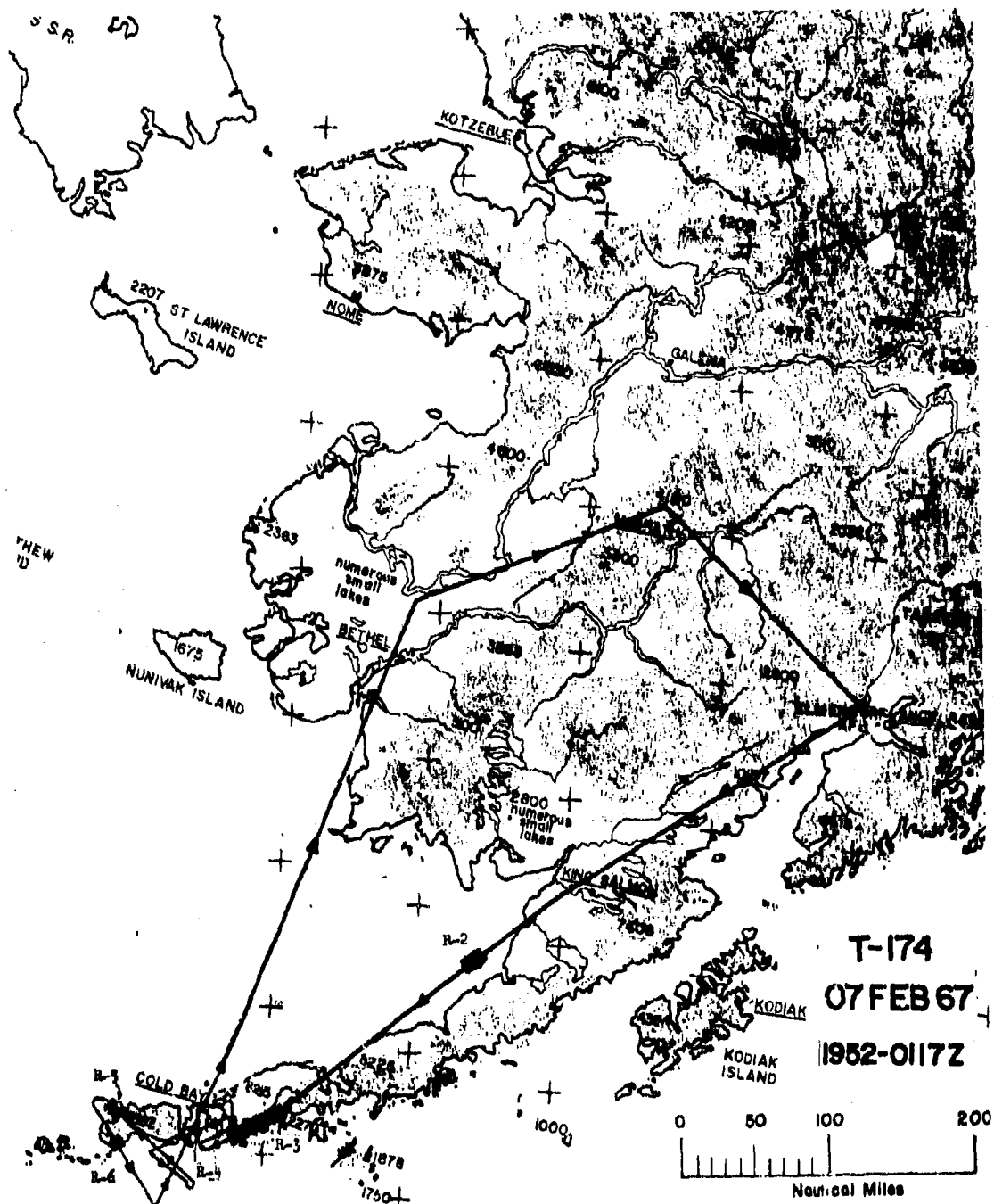
#### Meteorological Summary.

A low pressure at the surface was located in the Gulf of Alaska accompanied by a warm front approaching the southeast coast of Alaska. A ridge aloft was centered over the Yukon, so that the flow aloft over Alaska was south to south-westerly. Maximum winds were 90 knots from the south at 28,000 feet over Anchorage. The forecast called for a primary area of moderate turbulence at 59,500 to 62,000 feet near Cold Bay. The largest temperature gradient ( $5^{\circ}\text{C}$ ) along the flow contours at 100 mb lay between King Salmon and Cold Bay.

#### Pilot Report.

On climbout, some light turbulence was encountered at 56,000 feet in the King Salmon area. Choppy light turbulence was found in the Cold Bay area. A search pattern was flown at 57,000 feet, and turbulence could be found over Bethel in the altitude range 48,000 to 66,000 feet. The weather below was low scattered to broken strato-cumulus in the Cold Bay Area and completely overcast at Bethel.

Appendix IX



## Appendix IX

Test 175  
8 Feb. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

#### Meteorological Summary.

A deepening low pressure area was located south of the Aleutians at the surface. Pressure was also low over the Yukon and eastern Alaska. The ridge aloft continued to remain stationary over eastern Alaska and the Yukon. Winds at flight altitudes were generally 30 to 40 knots. The maximum wind at Bethel was 70 knots at 24,000 feet. A primary area of moderate turbulence was forecast for the layer 52,000 to 53,000 feet over the Seward Peninsula just north of Nome. A secondary area of light turbulence was forecast for the layer 52,000 to 55,000 feet over Bethel. Temperature gradients along the wind flow at 100 and 50 mb levels were small.

#### Pilot Report.

No significant turbulence was found any where along the route at flight altitudes. Only a few minutes of very light chop were found in the Nome area and again near McGrath. The weather was mostly clear.



## Appendix IX

Test 176  
10 Feb. 1967  
Elmendorf AFB, Alaska

### FLIGHT DESCRIPTION

#### Meteorological Summary.

At the surface, pressure was low over the western Aleutians and high over eastern Alaska and northwest Canada. The ridge aloft continued to persist over eastern Alaska and the Yukon. Maximum winds were associated with the circum-polar stratospheric jet stream between 85,000 and 110,000 feet with speeds of 90 knots. Winds at flight level were 35 to 50 knots. A primary area of moderate turbulence was forecast for the layer 58,000 to 60,000 feet in the Bethel area, and a secondary area of light turbulence was forecast for the layer 55,000 to 65,000 feet in the eastern portion of the Gulf of Alaska. Temperature gradients along the flow at 100 and 50 mb were very slight.

#### Pilot Report.

There was no debriefing tape, so no details are available. The pilot made no note of any turbulence in his log. The weather was clear throughout.



Appendix IX



Appendix II

Test 177  
13 Feb. 1967  
Elmendorf AFB, Alaska

FLIGHT DESCRIPTION

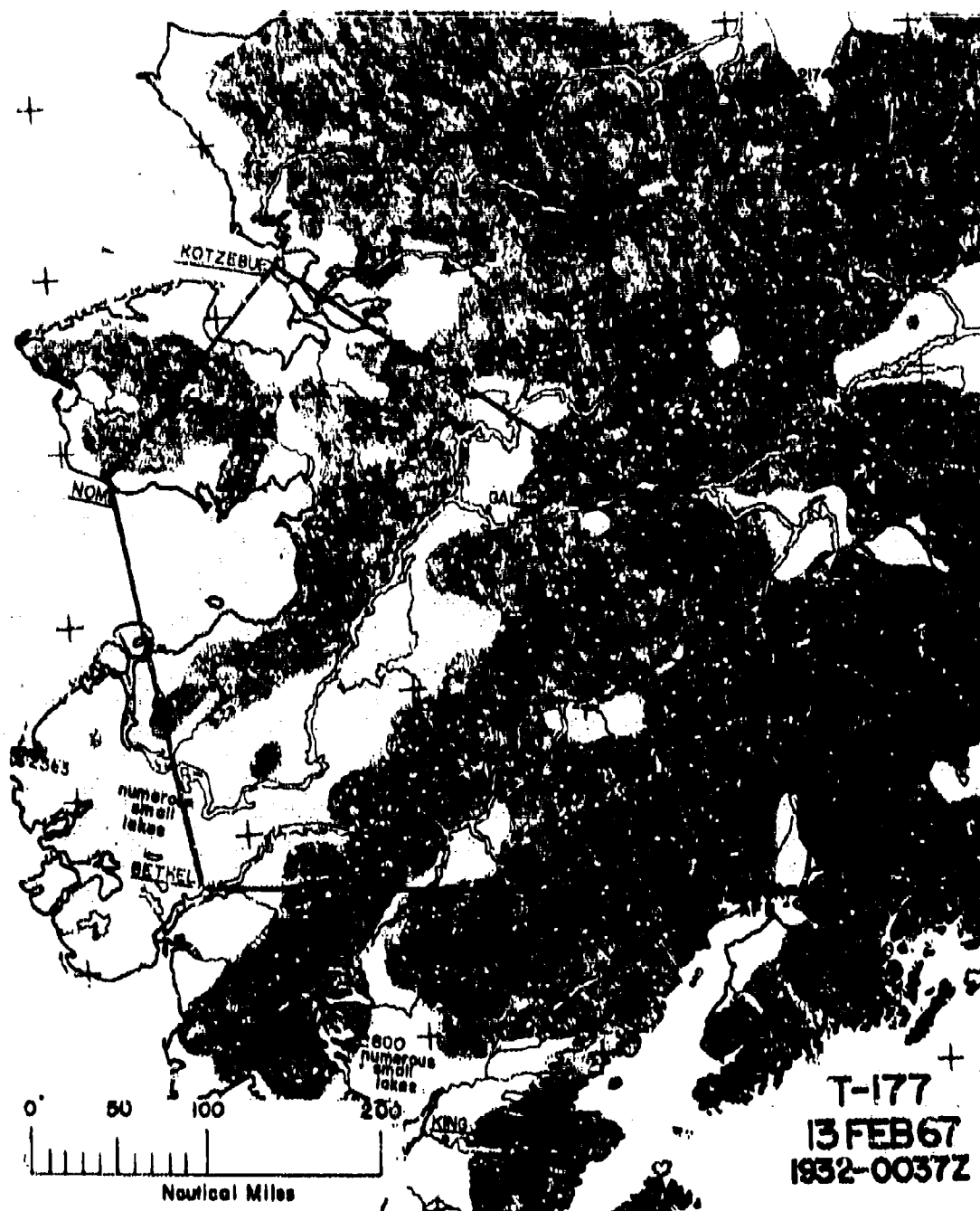
Meteorological Summary.

Pressure at the surface was high over Alaska and low in the Gulf and over the western Aleutians. There was a slight ridge aloft to the west of Alaska, but mostly a westerly flow. Two jet streams were again present. The tropospheric jet was at 26,000 feet with speeds of 95 knots over Anchorage. The circumpolar stratospheric jet was located slightly above 100,000 feet with speeds of 90 knots. At flight altitudes the winds averaged 45 to 55 knots. No significant turbulence was predicted although there was a slight temperature gradient along the flow of between two and three degrees between Bethel and Anchorage at 50 mb.

Pilot Report.

There was no significant turbulence found. According to the pilot's log, only a few patches of very, very light chop were noted at altitudes between 61,000 and 64,000 feet. The patches of chop were scattered along the entire route, but were found mainly in the area of Bethel, Kotzebue and east of Galena. The weather was clear throughout.

Appendix IX



## Appendix IX

Test 178  
14 Feb. 1967  
Elmendorf AFB, Alaska

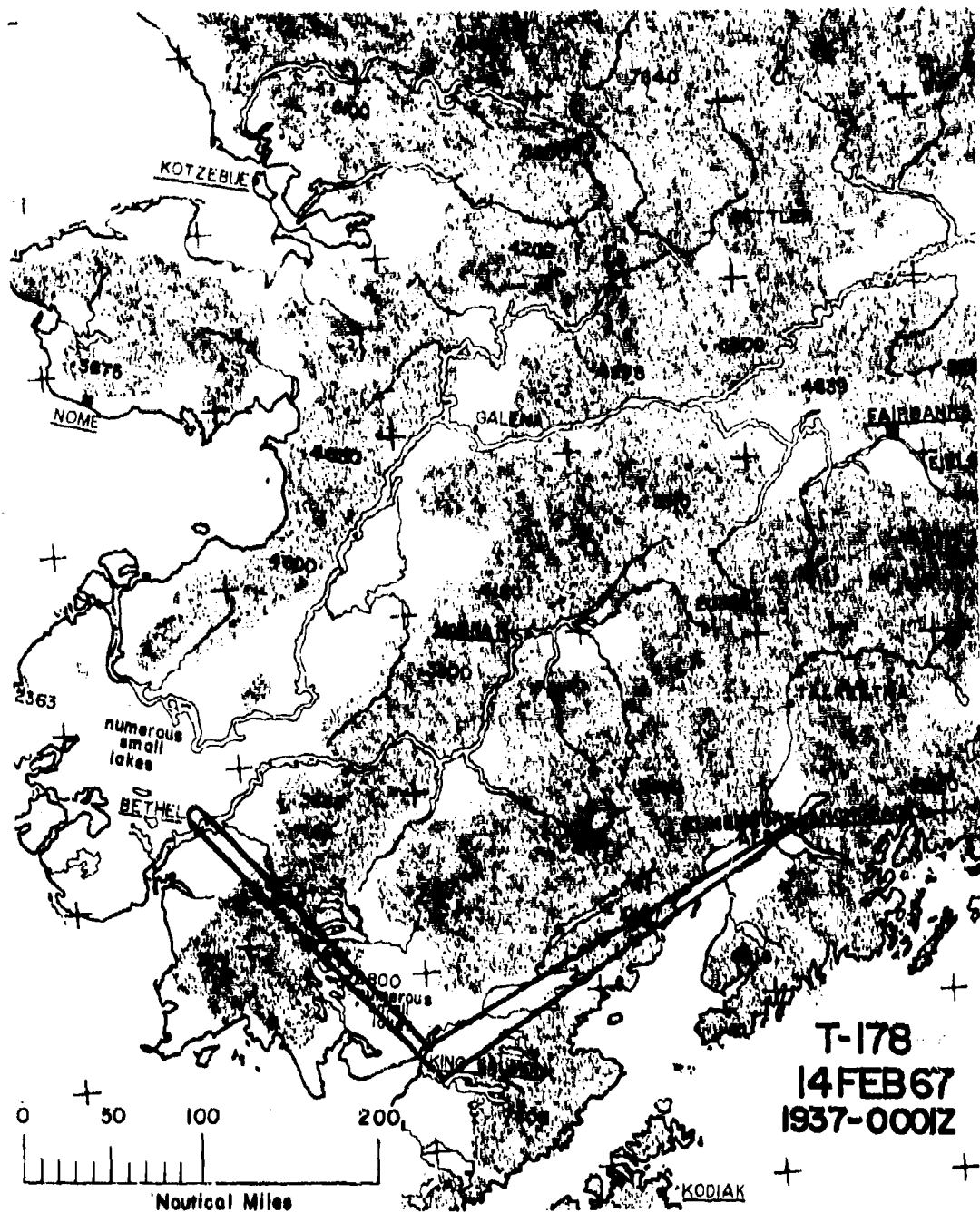
### FLIGHT DESCRIPTION

#### Meteorological Summary.

A low-pressure area was located at the surface over southeast Alaska and the eastern portion of the gulf; while high pressure covered northern Alaska and northwest Canada. A trough was located aloft over northwest Canada so that the winds over Alaska were northwesterly. The tropospheric jet stream was the stronger and was centered at 30,000 feet. Maximum winds were 130 knots in the Bethel and King Salmon area. Winds at flight altitudes were 45 to 50 knots. A primary area of light turbulence was forecast for the layer 61,000 to 63,000 feet near Bethel, and a secondary area of light turbulence was forecast over Anchorage. There was but little temperature gradient along the flow in this area.

#### Pilot Report.

No significant turbulence was found. Only one area of very light turbulence was noted at 56,000 feet both times while crossing the mountains between King Salmon and Bethel. The weather along the route was mostly low broken to overcast.



Appendix X

APPENDIX X  
METEOROLOGICAL TABLES

TEST No. 39  
 SOUNDING DATE 26 Nov 65 TIME 1200Z

REPORTING STATIONS														
CINCPAC	REINFORCES	SAIT LANE	CHART	JUNCTION	DAY	LAS VEGAS	EDWARDS	W. GREENGL	SAF NUTLAS	SAF HIRCO				
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C														
P	F	Temp	F	Temp	F	Temp	F	Temp	F	Temp	P			
<b>Standard Levels</b>														
150		-55.8		-61.1		-65.5		-69.4		-62.6		-68.7		
100		-60.4		-66.7		-69.4		-75.0		-61.6		-68.1		
70		-69.3		-69.2		-61.2		-61.5		-60.8				
50		-60.5		-62.2		-65.6		-62.8		-60.2				
<b>Significant Levels</b>														
155	-60.2	131	-59.2	130	-69.2	140	-68.8	138	-67.5	121	-68.0	143	-67.2	
128	-58.4	125	-63.7	122	-61.0	126	-66.5	124	-66.6	100	-69.0	133	-60.0	
127	-60.6	94	-59.3	107	-61.5	114	-67.4	111	-61.3	72	-61.0	103	-61.6	
117	-57.2	85	-60.0	94	-62.0	100	-66.3	100	-62.4	63	-62.3	97	-61.5	
105	-60.4			72	-69.4	74	-66.2	84	-62.5			90	-60.2	
84	-58.8					64	-61.2	68	-63.4					
						75	-65.8							
<b>RAVINSOIDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - m														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed		
<b>Standard Levels</b>														
150	231	39	233	39	244	60	260	82	220	68	236	78	236	115
100	231	19	233	27	250	41	251	35	253	51	257	31	256	20
70	232	20			261	43	262	33		268	16			
50	260	16			265	16	266	23		270	21			
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - m														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed		
250		300		250		200		200		200		190		
211		233		251		245		240		230		236		
105		91		115		111		106		107		115		

TEST No. 39  
SOUNDING DATE 17 JUL 65 TIME 0600

REPEATING STATIONS													
ORLAND	VERMONT	SALT LAKE	CHEROKEE	SEY	LAKE WENNE	EDWARDS	PT. ABERT	LAKE	SEY	LAKE	SEY	LAKE	SEY
RADIOSONDE DATA													
Pressure (hPa) - mb; Temperature - °C													
P	P	P	P	P	P	P	P	P	P	P	P	P	P
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp
Standard Levels													
50	50	50	50	50	50	50	50	50	50	50	50	50	50
100	100	100	100	100	100	100	100	100	100	100	100	100	100
150	150	150	150	150	150	150	150	150	150	150	150	150	150
200	200	200	200	200	200	200	200	200	200	200	200	200	200
250	250	250	250	250	250	250	250	250	250	250	250	250	250
300	300	300	300	300	300	300	300	300	300	300	300	300	300
350	350	350	350	350	350	350	350	350	350	350	350	350	350
400	400	400	400	400	400	400	400	400	400	400	400	400	400
450	450	450	450	450	450	450	450	450	450	450	450	450	450
500	500	500	500	500	500	500	500	500	500	500	500	500	500
550	550	550	550	550	550	550	550	550	550	550	550	550	550
600	600	600	600	600	600	600	600	600	600	600	600	600	600
650	650	650	650	650	650	650	650	650	650	650	650	650	650
700	700	700	700	700	700	700	700	700	700	700	700	700	700
750	750	750	750	750	750	750	750	750	750	750	750	750	750
800	800	800	800	800	800	800	800	800	800	800	800	800	800
850	850	850	850	850	850	850	850	850	850	850	850	850	850
900	900	900	900	900	900	900	900	900	900	900	900	900	900
950	950	950	950	950	950	950	950	950	950	950	950	950	950
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Significant Levels													
100	100	100	100	100	100	100	100	100	100	100	100	100	100
150	150	150	150	150	150	150	150	150	150	150	150	150	150
200	200	200	200	200	200	200	200	200	200	200	200	200	200
250	250	250	250	250	250	250	250	250	250	250	250	250	250
300	300	300	300	300	300	300	300	300	300	300	300	300	300
350	350	350	350	350	350	350	350	350	350	350	350	350	350
400	400	400	400	400	400	400	400	400	400	400	400	400	400
450	450	450	450	450	450	450	450	450	450	450	450	450	450
500	500	500	500	500	500	500	500	500	500	500	500	500	500
550	550	550	550	550	550	550	550	550	550	550	550	550	550
600	600	600	600	600	600	600	600	600	600	600	600	600	600
650	650	650	650	650	650	650	650	650	650	650	650	650	650
700	700	700	700	700	700	700	700	700	700	700	700	700	700
750	750	750	750	750	750	750	750	750	750	750	750	750	750
800	800	800	800	800	800	800	800	800	800	800	800	800	800
850	850	850	850	850	850	850	850	850	850	850	850	850	850
900	900	900	900	900	900	900	900	900	900	900	900	900	900
950	950	950	950	950	950	950	950	950	950	950	950	950	950
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - m													
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150	215	52	225	33	256	78	265	95	239	70	226	70	226
100	229	27	228	29	292	35	272	45	227	29	239	35	239
70	264	19	236	23	267	29	265	29	257	23	233	25	233
50	302	12	297	4	280	16	279	21	265	14			
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - m													
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
200	250		200		175		175		200		200		200
207	226		238		296		296		228		228		228
70	215		124		130		130		119		126		126



TEST No. 40  
SOUNDING DATE 17 May 65 TIME 1200Z

REPORTING STATIONS											
CAGELAND	WUBERMOCA	SALT LAKE	GRAND JUNCTION	ELY	LAS VEGAS	EMERSON	PT. ARGENTON	SAN NICOLAS	SAN DIEGO		
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C											
P	T	Temp	P	Temp	P	Temp	P	Temp	P	Temp	Temp
<b>Standard Levels</b>											
150		-60.2	-77.1	-62.6	-67.8	-63.7	-63.0	-60.6	-62.3	-66.3	
100		-59.7	-60.0	-63.0	-67.0	-63.6	-63.0	-62.8	-69.4	-64.0	
70		-60.0	-60.8	-61.8	-64.7	-64.1		-63.5	-64.5	-60.1	
50		-60.3	-62.6	-62.2	-67.0			-61.5	-62.1	-63.8	
<b>Significant Levels</b>											
140	116	-60.3	-60.4	100	-63.0	147	-62.0	147	-60.6	144	145
140	89	-58.0	-59.6	57	-61.1	100	-67.0	100	-62.9	113	139
135	43	-60.7	-63.3	50	-62.2	61	-63.9	68	-61.1	81	110
117	57	-53.2	-52.1	50	-67.0	66	-65.0	100	-64.3	70	102
111	90	-61.2	-62.2			95	-63.1	79	-61.7		84
103		-58.5						69	-63.6		75
96		-62.1						54	-60.5		66
66		-59.7									50
60		-61.3									50
<b>RAWINSOON DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
<b>Standard Levels</b>											
150	232	45	218	45	232	91	220	64	236	70	241
100	228	35	247	33	263	37	232	37	228	33	242
70	232	25	249	16	270	25	185	25			234
50	242	25	243	8	297	15					264
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
270	175	250	250	175	250	300			175		250
244	236	219	210	241	221	221			238		231
66	51	155	115	80	101	101			87		87

TEST No. 40  
 SOUNDING DATE 16 Nov 65 TIME 0000Z

OAKLAND		WINDROCK		BAYS LAKE		GRAND JUNCTION		ELY		LAS VEGAS		TUMACACI		PT. ARIZONA		SAN NICOLAS		SAN DIEGO		
REPORTING STATIONS																				
RADIOSONDE DATA																				
P	F	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	
Standard Levels																				
190		-56.3		-60.0		-61.9		-64.9		-59.9		-63.1		-60.1		-61.5		-61.5		-61.5
140		-57.6		-60.1		-59.7		-56.2		-65.0		-64.2		-61.0		-67.2		-67.2		-67.2
70		-57.9		-60.6		-63.1		-64.5		-62.2		-61.8		-63.0		-59.7		-59.7		-59.7
30		-60.1		-61.6		-61.7		-67.8		-61.9		-60.8				-57.6		-57.6		-57.6
Significant Levels																				
129		-55.6	121	-57.6	146	-61.0	144	-65.6	117	-62.6	125	-63.0		146	-59.3		143	-61.7		-61.7
116		-59.1	104	-60.7	135	-61.0	127	-63.3	105	-65.4	86	-65.0		123	-63.1		122	-65.2		-65.2
100		-57.8	77	-57.6	118	-64.6	106	-64.0	74	-62.0	75	-61.8		117	-60.8		110	-64.7		-64.7
85		-60.0	67	-61.8	106	-64.8	100	-66.2			68	-62.3		106	-62.9		100	-67.2		-67.2
68		-57.5			99	-58.9	80	-67.7			5	-60.3		100	-61.0		96	-66.8		-66.8
56		-61.4			67	-63.6	62	-61.5						85	-61.5		81	-63.3		-63.3
					53	-61.0	52	-69.0						79	-59.3		75	-57.6		-57.6
														65	-65.3		63	-62.7		-62.7
														60	-57.5		50	-57.6		-57.6
														52	-62.6					
RAWINSONDE DATA																				
Wind direction - Deg; Speed - Knots; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																				
130			227	62	243	76	260	80	241	80	237	70		230	91		236	82		82
100			222	23	250	39	241	31	234	35	242	51		242	72		239	92		92
70			217	23	266	25	269	33	254	23	265	19		230	25		252	25		25
50			250	16	270	21	281	17	268	12	252	17					262	21		21
MAXIMUM WIND																				
Direction - Deg; Speed - Knots; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
130			150		200		200		175		200			250				175		175
100			227		247		245		241		238			229				234		234
70			62		85		85		87		93			117				85		85

## REPORTING STATIONS

# REPORTING STATIONS

OAKLAND	VINEMASSA	EMERSON	PT. ANGELES	SAN MATEO	SAN DIEGO	MILFORD
RADIOSONDE DATA						
Pressure (h) - mb; Temperature - °C						
P	F	Temp	P	Temp	P	Temp
Standard Levels						
150		-65.0		-63.1		-62.7
100		-68.0		-66.3		-65.3
70		-66.6		-65.0		-66.9
50		-70.1		-61.0		-62.5
Significant Levels						
135		-67.6	136	-65.0	140	-65.8
111		-70.3	112	-62.7	130	-65.5
100		-68.0	93	-68.8	124	-67.8
80		-70.3	53	-61.3	100	-69.3
				87	-70.5	
				76	-67.8	
Significant Levels						
RAWINSONDE DATA						
Wind direction - Deg; Speed - Mph; Altitude - mb						
AR	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels						
296	74	289	76	320	52	310
276	41	276	41	300	39	287
276	21	296	33	295	17	274
205	14	302	12	318	19	300
Significant Levels						
MAXIMUM WIND						
Direction - Deg; Speed - Mph; Altitude - mb						
AR	175		200	230		200
301	306		332	305		343
78	111		76	76		68

TEST NO. 41  
 SOUNDING DATE 3 Dec 61 TIME 0000Z

REPORTING STATIONS														
OUTLAND	VERMONTICA	KEMANUS	PT. ARCEILO	SAN KICULAS	SAN DIEGO	MCINTOSH								
RADIOSONDE DATA														
P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Pressure (h) - mb; Temperature - °C														
Standard Levels														
190	-65.9	-62.9		-64.1	-64.7	-62.8	-64.5							
100	-69.0	-66.2		-70.4	-70.9	-69.9	-66.6							
70	-65.2	-64.3		-72.0	-71.5	-70.8	-64.1							
50	-65.0	-59.5			-64.6	-65.4	-61.8							
Significant Levels														
115	-70.2	150	-62.9	148	-64.6	111	-72.5	119	-69.2	145	-64.4			
96	-68.6	120	-67.5	115	-70.5	100	-70.9	71	-71.4	123	-69.5			
88	-71.8	130	-66.2	100	-70.4	70	-71.5	58	-65.0	100	-66.6			
80	-72.0	58	-63.2	69	-72.1	62	-66.5							
70	-65.2			51	-65.0									
50	-65.0			54	-66.6									
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Speed	
Standard Levels														
190	282	56	303	91			320	56	307	39	314	41	277	93
100	282	32	299	47			296	43	296	35	310	29	270	47
70	269	23	233	33			272	17	273	14	298	14	284	14
50	314	8	304	12					306	10	283	10	306	12
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Speed	
200		175			250		200		200		175			
282		301			286		316		332		260			
68		103			60		43		54		103			

TEST No. 44

SOUNDING DATE 10 Feb 66 TIME 1200Z

## REPORTING STATIONS

LAS VEGAS		RENNETS		PT. ARBUELE		SAN FIDELAS		SAN DIEGO		WHEELS		TUSCON	
RADIOSONDE DATA													
Pressure (2) - mb; Temperature - °C													
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels													
150				-59.3				-55.6				-50.0	
100				-57.8				-53.7				-53.0	
70				-60.3				-58.2				-56.3	
50				-55.5				-55.7				-57.0	
Significant Levels													
143				-51.6	148			-57.0				-52.6	120
129				-54.6	112			-60.7				-53.0	100
125				-58.0	104			-56.5				-54.4	75
118				-57.8	87			-62.3				-56.2	50
109				-56.1	81			-56.8				-58.2	
100				-57.8	70			-60.3				-56.1	
81				-56.1	65			-56.1				-57.0	
68				-58.3									
63				-55.6									
57				-58.7									
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150													
100													
70													
50													
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150													
100													
70													
50													

TEST No. 44

SOUNDING DATE 11 Feb 66 TIME 0000Z

REPORTING STATIONS												
LAS VEGAS		KUNIGS		DEL. ANGELES		SAN KITAS		SAN DIEGO		MEXICO		
RADIOSONDE DATA												
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	
Pressure (P) - mb; Temperature - °C												
Standard Levels												
190		-49.0				-51.8			-49.8		-49.9	
100		-54.5				-57.6			-52.8		-58.7	
70		-57.0				-57.7			-56.0		-56.8	
90		-56.0				-58.1			-56.4		-56.4	
Significant Levels												
138		-51.5		141	-54.6		143	-51.7	140	-52.5	121	-55.7
128		-50.0		102	-60.6		138	-51.3	136	-49.4	114	-54.0
109		-53.3		96	-57.5		127	-51.9	94	-56.7	97	-59.0
170		-54.5		85	-62.5		123	-52.0			93	-57.0
63		-57.8		73	-56.5		110	-57.4				
				65	-59.7		87	-58.6				
							84	-56.2				
							68	-58.3				
RAWINSONDE DATA												
Wind direction - Deg; Speed - Knots; Altitude - mb												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
190	328	37		325	62		308	47	298	37	278	45
100	333	33		340	70		303	21	298	21	293	25
70	345	24		165	10		319	2	284	14	276	17
90	096	6		061	8		310	2	296	6	296	10
MAXIMUM WIND												
Direction - Deg; Speed - Knots; Altitude - mb												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
200				300			370		190		300	
341				343			306		298		251	
Speed	95			128			97		37		10	

TEST No. 50  
 SOUNDING DATE 22 Mar 56 TIME 1202Z

REPORTING STATIONS											
NUMBER	SALT LAKE	CHAND JUNCTION	KEY	JAS WINDS	REF DATA	PT. ANGELLO	CAN FIELDAS	BOINE			
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Tempature - °C											
P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels											
150	-62.3	-56.3	-47.1	-63.0	-62.3	-62.7	-62.1	-59.1			
100	-59.3	-54.2	-52.2	-61.6	-60.7	-62.7	-62.4	-59.3			
70	-57.3	-52.8	-54.5	-58.5	-58.5	-60.2	-59.2	-57.1			
50	-56.3	-56.5	-59.1	-59.0	-60.0	-60.0	-60.2	-55.1			
Standard Levels											
Significant Levels											
141	-61.3	133	-59.3	144	-48.9	136	-61.5	146	-63.0	140	-63.8
100	-59.3	125	-58.4	128	-57.3	125	-62.4	140	-59.8	127	-61.7
95	-56.0	121	-59.8	110	-61.5	111	-60.5	125	-61.7	117	-63.2
98	-58.2	110	-59.3	107	-60.7	100	-61.6	74	-59.4	100	-62.7
55	-59.3	100	-54.2	100	-53.2	93	-59.4	61	-56.5	84	-50.2
		84	-60.2	64	-54.8	86	-61.5			53	-50.4
			-55.8	52	-58.9	63	-58.1				
		66	-58.8			63	-61.5				
		54	-59.3			56	-57.2				
		51	-55.8								
<b>RAWINSOONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb											
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
150	325	45	253	49	267	35	300	52	287	49	277
100	259	37	240	27	278	23	295	35	250	43	276
70	273	21	202	12	240	17	285	25	271	37	259
50	254	14	196	10	287	4	Calm		270	19	275
Standard Levels											
MAXIMUM WIND											
Direction - Deg; Speed - Knots; Altitude - mb											
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150	175	250		250	300	300	150	125	125	125	250
100	313	330	315	287	318	287	275	272	270	337	337
70	308	311	68	68	80	80	47	47	47	82	82

# Appendix X

TEST No. 20  
SOUNDING DATE 23 Mar 56 TIME 0000Z

## REPORTING STATIONS

STATION DATA		RAIS TANK		CHAND JUNCTION		REY		LAS TENGAS		KORONADO		PT. ARGUELLO		SAN VICENTE		BOHIO	
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C																	
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
<b>Standard Levels</b>																	
150	-61.3	-59.9	-56.6	-60.8	-59.9	-62.6	-61.1										
100		-57.9	-55.5	-59.6	-62.5	-63.0	-57.6										
70		-55.6	-53.6	-58.5	-57.8	-59.6	-57.1										
50		-56.1	-55.3	-56.3	-56.9	-60.2	-56.8										
<b>Significant Levels</b>																	
150	-61.3	112	-60.4	119	-56.0	136	-61.8	123	-61.9	140	-61.3	149	-60.8				
115	-61.5	109	-58.4	108	-58.3	100	-59.6	116	-60.6	100	-63.0	100	-57.6				
		100	-57.9	84	-55.5	76	-56.4	100	-62.5	92	-63.6	98	-57.0				
		72	-55.3			69	-59.0	64	-56.7	84	-59.4						
		55	-56.8			57	-54.0										
		53	-54.3														
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
<b>Standard Levels</b>																	
150	305	33	294	41	302	56	300	37	282	41		248	27		315	37	
100			278	27	272	23	288	23	267	37		261	27		303	19	
70			269	17	246	16	265	21	273	41		267	27		279	21	
50			258	10	250	19	267	16	283	19		266	17		238	12	
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150	250	308	339	82	250	300	306	47	125	125		125			330		
100									276	276		276			72		
70									45	45		45					
50																	



TEST No. 51  
 SOUNDING DATE 25 Mar 66 TIME 1200Z

REPORTING STATIONS																		
LAS VEGAS		EDWARDS		ZT. ARCHELLO		SAN MIGUEL		SAN DIEGO		VINELAW		YUCON		ALBUQUERQUE		EL PASO		
RADIOSONDE DATA																		
Pressure (P) - mb; Temperature - °C																		
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	
Standard Levels																		
150		-55.6		-53.4		-53.2		-54.1		-54.0		-57.6		-56.9		-59.3		-61.2
100		-60.2		-59.4		-59.7		-59.1		-59.2		-62.8		-61.7		-62.0		-65.2
70		-60.5		-61.1		-61.8		-62.9		-60.0		-60.2		-59.9		-61.7		-63.2
50		-60.4		-60.9		-59.4		-60.2		-59.4		-61.0		-62.2		-62.0		-64.6
Significant Levels																		
133		-56.9	149	-53.4	149	-53.1	101	-59.0	146	-55.2	147	-58.0	100	-61.7	143	-59.9	104	-66.7
111		-57.0	113	-58.9	121	-58.5	84	-63.9	131	-54.5	121	-57.7	65	-59.4	101	-61.9	100	-65.2
100		-60.2	100	-59.4	69	-61.9		116	-57.8	100	-62.8	75	-62.4	75	-62.4	93	-59.3	
70		-60.5	78	-61.1	60	-57.1		100	-59.2	81	-63.1	59	-59.9	59	-59.9	83	-63.7	
								91	-61.2	67	-59.4					65	-63.0	
								64	-59.6							55	-65.8	
RAWINSONDE DATA																		
Wind direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																		
150	268	12	275	17	299	23	288	33	264	27	242	31	245	49	249	47	252	64
100	269	23	275	25	292	25	274	27	270	29	256	37	241	47	273	35	255	66
70	266	27	266	21	278	19	265	23	258	23	279	25	274	35	281	25	262	27
50	289	27	265	21	257	17	263	19	269	21	274	14	290	14	261	25	264	23
MAXIMUM WIND																		
Direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
350		250		350		300		125		125		125		250		200		250
160		025		006		349		262		244		222		234		228		228
27		35		43		62		39		37		60		54		103		103

TEST No. 51SOUNDING DATE 26 Dec 66 TIME 0000

REPORTING STATIONS														
LAS VEGAS	KORVARS	FT. ARDEN	SAN VICENTE	SAN PEDRO	YUMBON	TUCSON	ALBUQUERQUE	EL PASO						
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C														
P	P	P	P	P	P	P	P	P						
<b>Standard Levels</b>														
150	-54.2				-53.9		-54.3	-56.7						
100	-59.3				-59.5		-57.9	-61.0						
70	-57.5				-61.1		-59.7	-62.6						
50	-57.8				-58.0		-58.0	-58.9						
<b>Significant Levels</b>														
150	-54.4			100	-59.5	138	-56.4	112	-58.8	144	-56.0	144	-56.6	
103	-59.4			74	-62.2	111	-59.4	100	-57.9	107	-59.9	121	-61.7	
78	-59.0			54	-56.0	118	-57.3	79	-62.5	80	-61.0	103	-61.0	
71	-57.2					100	-58.3	57	-58.5	59	-57.8	90	-59.7	
65	-59.1					50	-58.5	50	-61.4			82	-62.8	
												74	-61.7	
												66	-63.3	
												59	-61.0	
												53	-61.9	
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
<b>Standard Levels</b>														
150	275	17		288	29		273	33	268	33	297	52	258	37
100	287	23					271	37	266	33	258	45	268	43
70	289	23					270	21	276	29	258	33	265	33
50	269	19					235	14	277	25	258	27	294	21
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	290			190			300		190				100	
100	288			288			305		268				298	
70	288			29			54		33				43	
50	29												74	

TEST No. 52  
 SOUNDING DATE 28 Mar 66 TIME 1200Z

REPORTING STATIONS														
CAGCART	VERMONT	LAS VEGAS	EMERSON	PT. ARBONTO	SAN PEDRO	REPORTED								
RADIOSONDE DATA														
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-55.3		-55.0		-55.7		-56.0		-55.8		-55.8		
100		-64.3		-63.3		-63.2		-63.1		-63.2		-61.5		
70		-64.7		-63.3		-63.6		-64.0		-63.1		-62.5		
50		-62.0		-62.1		-55.8		-63.0		-62.5		-63.2		
Significant Levels														
100	64.3	100	-63.3		146	-56.3	114	-57.2	25	-55.8	122	-55.5		
80	66.0	66	-63.2		112	-65.0	131	-57.2	79	-63.2	114	-61.8		
		62	-63.6		100	-63.2	100	-65.1		100	-61.5			
					56	-66.5	76	-65.1		77	-64.8			
					56	-61.5	55	-61.3		67	-61.3			
										53	-63.5			
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	311	17	334	27										
100	305	17	328	23										
70	315	19	315	25										
50	300	14	309	16										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	125	150		125		200								
100	310	334		300		283		255						
70	25	27		35		45								

# Appendix X

TEST No. 22  
SOUNDING DATE 29 Mar 66 TIME 0002Z

REPORTING STATIONS												
OKLAHOMA	VERMONT	LAS VEGAS	KANSAS	FL. AIRCRAFT	SAR STATIONS	REPORTED						
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C												
P	T	Tmp	P	Tmp	P	Tmp	P	Tmp	P	Tmp	P	Tmp
Standard Levels												
150		-56.1		-56.1		-56.1		-56.1		-56.1		-56.1
100		-62.8		-55.6		-61.6		-61.6		-61.6		-61.6
70		-63.1		-62.3		-63.0		-62.0		-62.0		-62.0
50		-60.6		-60.2		-60.5		-60.5		-60.5		-60.5
Significant Levels												
116	-58.9	104	-60.1			-55.3		-57.4		-57.4		-57.4
100	-62.8	101	-55.4			-58.6		-61.2		-61.2		-61.2
92	-64.3	77	-61.1			-61.6		-59.1		-59.1		-59.1
90	-62.6					-64.6		-64.3		-64.3		-64.3
60	-63.3					-60.7		-64.8		-64.8		-64.8
								-61.0		-61.0		-61.0
								-67.5		-67.5		-67.5
<b>RAWINSOONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
150	349	27	338	25			319	23		330	35	
100	323	21	320	23			317	21		297	16	
70	315	16	314	23			316	19		300	17	
50	312	19	324	17			298	14		308	21	
MAXIMUM WIND												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
200			175				290			250		
01B			357				017			354		
54			31				23			15		

TEST NO. 53

SOUNDING DATE 31 Mar 66 TIME 1200Z

## REPORTING STATIONS

SALT LAKE	GRAND JUNCTION	KEY	LAS VEGAS	KUNMING	PT. ARIFELLO	SAN MIGUEL	SAN DIEGO	WINSTON	COML. MONT PELE
RADIOSONDE DATA									
P	P	P	P	P	P	P	P	P	P
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp
Pressure (P) - mb; Temperature - °C									
Standard Levels									
190	-62.6	-63.0	-62.9	-61.5	-61.2	-61.7	-61.3	-58.2	-59.6
100	-63.9	-63.5	-67.2	-64.6	-68.5	-66.2	-69.2	-64.8	-65.5
70	-68.0	-66.0	-66.6	-66.1	-70.1	-67.4	-70.4	-66.6	-67.5
50	-62.3	-62.1	-64.5	-62.0	-52.0	-63.1	-61.3	-61.3	-62.0
Significant Levels									
139	-65.7	-61.6	-64.8	-60.6	-62.3	-62.4	-64.4	-58.0	-65.5
125	-62.2	-63.5	-62.6	-64.6	-61.3	-66.0	-66.3	-65.5	-67.9
100	-63.9	-63.5	-67.7	-67.5	-63.1	-66.2	-69.5	-64.0	-67.9
71	-68.6	-66.8	-66.6	-65.4	-61.8	-67.5	-69.0	-68.6	-68.6
62	-63.9	-63.3	-69.3	-65.0	-65.0	-70.7	-72.7	-66.5	-66.5
			-64.8	-68.5	-68.5		-67.2		
				-70.4	-70.4		-61.3		
RAWINSONDE DATA									
Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
190	143	37	346	41	008	26	6	58	350
100	317	33	323	39	343	27	374	31	337
70	318	27	335	19	330	21	339	16	330
50	324	16	330	27	349	12	353	14	3
Standard Levels									
190	143	37	346	41	008	26	6	58	350
100	317	33	323	39	343	27	374	31	337
70	318	27	335	19	330	21	339	16	330
50	324	16	330	27	349	12	353	14	3
MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
190	143	37	346	41	008	26	6	58	350
100	317	33	323	39	343	27	374	31	337
70	318	27	335	19	330	21	339	16	330
50	324	16	330	27	349	12	353	14	3

TEST No. 51 (cont.)

SOUNDING DATE 31 Mar 66 TIME 1200Z

REPORTING STATIONS

TIDE		ALTIMETER		SL. BARO		Pressure (h) - mb; Temperature - °C											
P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	
RADIOSONDE DATA																	
Standard Levels																	
150		-55.9		-62.0		-58.0											
100		-61.9		-63.5		-64.1											
70		-62.5		-64.1		-67.5											
50		-64.2		-64.0		-66.7											
Significant Levels																	
122		-61.5	105	-62.2	100	-64.1											
109		-61.9	89	-66.7	71	-67.6											
100		-61.9	64	-63.2	50	-63.9											
92		-65.8	56	-65.6													
77		-67.5															
61		-67.5															
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Standard Levels																	
150	037	12	312	16	220	10											
100	334	21	326	21	285	19											
70	335	19	335	19	286	16											
50	350	14	307	14	310	21											
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
250		300		250													
100	061	060		088													
Speed	70	35		51													

TEST No. 53

SOUNDING DATE 1 Apr 66 TIME 0000Z

## REPORTING STATIONS

SALT LAKE		GRAND JUNCTION		ZNY		LAS VEGAS		HENDERSON		PT. ANGELICO		SAN NICOLAS		SAN DIEGO		WHEELON		COMPT. NEXT PAGE		
RADIOSONDE DATA																				
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	
Pressure (P) - mb; Temperature - °C																				
Standard Levels																				
190		-60.5		-57.4		-62.7		-59.8				-61.6				-56.7			-57.9	
100		-66.4		-64.5		-65.3		-67.2				-67.2				-63.8			-63.9	
70		-64.0		-67.5		-66.6		-64.4				-70.7				-69.6			-67.6	
50		-61.8		-61.0		-63.5		-60.7				-63.1				-61.1			-61.2	
Significant Levels																				
190		-50.5	120	-57.4	127	-60.0	139	-59.5			109	-70.2			142	-55.6	142		-59.6	
142		-55.4	130	-63.5	107	-68.0	116	-66.5			98	-66.5			125	-55.1	135		-58.4	
100		-66.4	120	-60.3	104	-68.0	93	-67.7			76	-70.7			109	-65.4	120		-61.5	
			100	-64.5	100	-69.3					61	-62.5			109	-62.5	113		-60.5	
			92	-67.8	78	-67.5					51	-63.7			91	-67.9	100		-62.9	
			84	-63.7											69	-69.6				
			68	-68.0											61	-61.3	55		-60.2	
			62	-62.0																
RAWINSOON DATA																				
Wind direction - Deg; Speed - Knots; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																				
190	328	64	341	39	330	72	354	51			137	43			357	64	03		35	
100	316	41	306	27	320	42	350	27			137	25			004	25	353		21	
70	322	27	328	33	320	27	320	10			159	8			005	16	325		25	
50	346	16	311	12	328	16	323	14			325	14			343	14	340		14	
MAXIMUM WIND																				
Direction - Deg; Speed - Knots; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
190	290		175		190		200				200				175		175			
100	327		332		330		018				348				009		014			
70	346		60		72		68				98				70		43			

# Appendix X

TEST No. 53 (cont.)

SOUNDING DATE 1 Apr 66 TIME 0000Z

REPORTING STATIONS									
TOCITY	ALBUQUERQUE	EL PASO							
RADIOSONDE DATA									
P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C									
Standard Levels									
150	-55.6		-57.9		-57.4				
100	-63.1		-64.6		-63.4				
70	-66.0		-63.9		-66.0				
50	-63.0		-60.2		-60.4				
Significant Levels									
100	-63.1	124	-59.6	115	-59.7				
83	-57.6	100	-64.6	100	-63.4				
		86	-65.7	69	-66.1				
RAWINSONDE DATA									
Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels									
150	020	35	349	25	319	10			
100	358	16	329	21	304	16			
70	345	14	228	25	307	16			
50	310	14	311	14	303	16			
MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - mb									
Alt	250	250		300					
Dir	055	357		073					
Speed	51	27		36					



TEST No. 54

SOUNDING DATE 1 Apr 66 TIME 1200Z

REPORTING STATIONS																
NUMBER	SALT LAKE	GRAND JUNCTION	ELY	LAS VEGAS	REMARKS	PT. ARIZONA	SAN NICOLAS	SAN DIEGO								
RADIOSONDE DATA																
Pressure (P) - mb; Temperature - °C																
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P					
Standard Levels																
150	-62.7	-61.0	-61.0	-62.0	-61.4	-62.0	-62.4	-58.2								
100	-67.1	-66.7	-66.5	-66.5	-69.6	-69.0	-72.5	-70.8								
70	-67.2	-68.0	-68.0	-68.0	-68.9	-69.1	-69.2	-67.7								
50	-65.0	-61.9	-61.9	-61.9	-66.3	-64.2	-64.3	-64.7								
Significant Levels																
100	-67.1	108	-63.7	130	-59.7	107	-67.6	150	-61.4	105	-67.9	146	-63.2	146	-58.3	
70	-68.5	100	-66.7	117	-64.8	100	-66.5	137	-60.0	100	-69.0	127	-69.2	127	-63.9	
50	-63.3	88	-68.7	100	-63.5	90	-70.0	127	-60.9	88	-73.6	100	-70.8	100	-70.8	
		80	-66.1	84	-69.7	79	-66.9	105	-69.3	60	-66.1	96	-69.2	96	-69.2	
				78	-66.3	64	-68.8	100	-69.6			81	-72.6	81	-72.6	
				67	-67.3	57	-64.2	78	-72.1			75	-67.5	75	-67.5	
				63	-62.8			63	-65.8			61	-68.0	61	-68.0	
								53	-67.5			51	-64.3	51	-64.3	
RAWINSONDE DATA																
Wind direction - Deg; Speed - Knts; Altitude - mb																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																
150	309	70	329	76	331	64			333	68	321	51	334	56	358	72
100	312	41			332	39			339	25	356	16	318	12	325	31
70	312	23			329	29			339	21	337	19	355	23	002	23
50	343	17			346	14			345	14	009	10	017	8	009	14
MAXIMUM WIND																
Direction - Deg; Speed - Knts; Altitude - mb																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	150	175			200				150		175		175		150	
100	309	333			350				313		322		344		358	
50	70	78			101				68		58		60		37	

## RADIOSONDE DATA

[illegible]

### **Significant Levels**

[illegible]

## RAWINSONDE DATA

[illegible]

## MAXIMUM WIND

Alt	200	250	175
Hgt	325	011	308
SocSec	64	63	89

**SOUNDING DATE** 2 Apr 66 **TIME** 0000Z

**SOUNDING DATE** 2 Apr 66 **TIME** 0000Z

## REPORTING STATIONS

WINDMILLS		SALT LAKE		GRAND JUNCTION		KEY		LAS VEGAS		EDWARDS		PT. ANGELICO		SAN MIGUEL		SAN DIEGO		
RADIOSONDE DATA																		
Pressure (P) - mb; Temperature - °C																		
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels																		
150	-61.7	-63.9	-64.4	-62.7	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5
100	-63.9	-63.9	-64.4	-66.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8	-68.8
70	-66.4	-63.0	-64.9	-65.5	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9	-65.9
50	-62.1	-61.5	-62.0	-63.9	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0
Significant Levels																		
162	-63.0	147	-64.2	150	-64.4	118	-67.8	123	-64.7			100	-68.0	144	-63.8	131	-65.2	
104	-64.5	127	-60.5	140	-59.8	100	-66.8	98	-69.0			86	-72.2	100	-71.0	116	-66.1	
95	-63.5	115	-63.0	130	-59.0	85	-71.0	94	-66.4					92	-74.8	100	-70.5	
81	-68.2	110	-61.4	113	-63.7	66	-63.9	84	-69.4					76	-67.8	90	-72.8	
71	-62.3	90	-66.4	100	-64.4			79	-65.5					67	-69.0	80	-66.0	
				63	-64.9			56	-66.8							75	-63.8	
				53	-64.1			52	-62.3							58	-67.1	
RAWINSONDE DATA																		
Wind direction - Deg; Speed - Knots; Altitude - mb																		
Air	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150		321	72	29	68	324	62	337	60			314	49	330	41	350	54	
100		318	51	348	62	310	49	312	39			314	19	339	27	343	35	
70		319	21	335	21	329	21	338	23			313	10	296	8	318	6	
50		306	19	344	23	344	19	343	23			344	16	349	12	358	17	
Standard Levels																		
MAXIMUM WIND																		
Direction - Deg; Speed - Knots; Altitude - mb																		
250		175		175		175		150				175		175		150		
200		323		343		332		337				313		335		350		
150		80		78		52		60				52		52		54		

# Appendix X

TEST No. 54 (cont.)

SOUNDING DATE 2 Apr 66 TIME 0000Z

VISION		ALTIMETER		BOUSE		REPORTING STATIONS											
RADIOSONDE DATA																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	
Pressure (P) - mb; Temperature - °C																	
Standard Levels																	
150	-60.0		-56.3														
100	-66.9		-63.7														
70	-66.1		-65.2														
50	-63.5		-60.4														
Significant Levels																	
132	-60.2	144	-55.5	100	-63.2												
115	-65.4	107	-64.4	78	-65.9												
110	-61.7	104	-61.2	67	-61.2												
100	-66.9	100	-63.7	61	-64.9												
79	-68.6	86	-67.5														
72	-65.9	60	-65.4														
58	-67.0	58	-63.5														
RAWINSONDE DATA																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Wind direction - Deg; Speed - Knts; Altitude - mb																	
Standard Levels																	
150	356	52	346	41	295	68											
100	355	47	335	41	291	49											
70	344	27	327	17	310	21											
50	345	16	325	16	314	17											
MAXIMUM WIND																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Direction - Deg; Speed - Knts; Altitude - mb																	
175			200			200											
002			011			280											
64			60			82											

TEST No. 55

SOUNDING DATE 5 Apr 66 TIME 1200Z

REPORTING STATIONS																			
RADIOSONDE DATA				LAS VEGAS				EDWARDS		PT. AUGELLO		SAN NICOLAS		MUSLON		BOBEE			
HIMMELCA				SALT LAKE				GRAND JUNCTION				ZAY							
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	
Pressure (P) - mb; Temperature - °C																			
Standard Levels																			
150		-57.3		-57.7		-55.7		-58.4		-58.0		-58.1		-56.6		-59.4		-55.2	
100		-62.0		-61.9		-59.0		-61.2		-61.0		-67.4		-66.7		-68.1		-61.5	
70		-62.3		-61.0		-59.9		-63.4		-61.2		-62.6		-65.8		-67.0		-61.7	
50		-62.5		-60.2		-62.3		-62.2		-62.0		-62.0		-63.2		-62.0		-61.8	
Significant Levels																			
100		-62.0	137	-60.2	150	-55.7	124	-59.4	140	-58.5	149	-58.2	129	-62.9	85	-67.4	128	-62.5	
				-61.9	138	-55.2	112	-62.2	121	-63.2	119	-66.5	107	-67.3	81	-69.5	100	-64.2	
			74	-58.7	127	-57.2	100	-61.2	82	-66.8	104	-68.5	74	-64.8		64	-66.8		
			66	-63.2	120	-56.0	68	-65.1		100	-67.4	65	-67.3		59	-64.2			
			56	-64.2	106	-59.0	63	-62.2			77	-66.8	55	-65.3					
			51	-60.2	100	-52.0					70	-62.6							
					72	-59.3					65	-64.4							
					53	-63.1					51	-62.1							
RAWINSONDE DATA																			
Wind direction - Deg; Speed - Knots; Altitude - mb																			
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Standard Levels																			
150	306	37	317	51	310	58	308	62	283	68	274	49	252	37	247	47	296	80	
100	329	29	326	43	323	49	312	39	303	43	290	33	282	17	276	23	294	45	
70	306	23	323	14	317	23	338	25	329	19	315	12	309	8	293	8	300	23	
50	017	14	347	8	317	14	012	10	336	6	297	16			023	6	334	14	
MAXIMUM WIND																			
Direction - Deg; Speed - Knots; Altitude - mb																			
Alt	125		200		300		190		175		175		200		200		200		
Speed	313		333		352		308		288		270		244		251		252		
	41		56		82		62		76		60		52		82		81		

# Appendix X

TEST No. 25

SOUNDING DATE 6 Apr 66 TIME 0002

REPORTING STATIONS													
ROMBERG	ELLY LAKE	GRAND JUNCTION	ELY	LAS VEGAS	EMERSON	PT. ASTERLO	SAN MICHAEL	WINDSON	MOORE				
RADIOSONDE DATA													
Pressure (h) - mb; Temperature - °C													
P	P	P	P	P	P	P	P	P	P				
Standard Levels													
150	-75.3	-75.9	-56.7	-56.8	-55.1	-57.7							
100	-62.5	-61.6	-61.7	-61.7	-61.7	-63.5							
70	-61.9	-60.9	-61.7	-61.7	-61.7	-65.2							
50	-60.1	-60.1	-60.0	-60.0	-60.0	-61.6							
Significant Levels													
110	-61.0	-61.6	-61.6	-61.6	-61.6	-61.6							
85	-62.4	-61.6	-61.6	-61.6	-61.6	-61.6							
58	-61.2	-61.2	-61.2	-61.2	-61.2	-61.2							
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir				
Standard Levels													
150	283	37	315	40	312	58	338	43	279				
100	303	23	309	37	324	47	306	25	293				
70	340	16	324	25	308	23	330	16	299				
50	358	12	338	14	220	21	338	14	342				
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir				
150	190	250	200	150	200	175	200	250	250				
100	293	348	322	298	271	235	282	247	247				
70	37	56	64	43	52	42	72	21	21				

TEST No. 56  
 SOUNDING DATE 6 Apr 66 TIME 1200Z

REPORTING STATIONS													
ELI	LAS VEGAS	EDWARDS	FT. ARCHER	SAN HEDOLAS	SAN DIEGO	WINDSON	TUCSON						
RADIOSONDE DATA													
P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C													
Standard Levels													
150	-58.0		-57.6		-50.0		-59.1		-57.6		-50.9		
100	-65.0		-63.3		-66.7		-63.5		-65.3		-66.4		
70	-63.6		-63.1		-65.9		-67.5		-63.8		-69.9		
50	-62.4		-63.5		-62.8		-62.0		-63.5		-63.9		
Significant Levels													
105	-64.4	132	-55.8		-59.9	144	-61.5	139	-60.9	107	-65.0	150	-60.9
86	-66.8	100	-66.5		-63.5	68	-65.0	129	-59.9	74	-67.3	138	-63.3
78	-62.3	55	-64.4		-63.3			117	-62.8	70	-63.8	100	-66.4
60	-65.5				-60.9			100	-63.5			76	-70.3
					-64.6			80	-69.0			65	-69.8
					-63.0			59	-65.4				
					-63.5								
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knts; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150	296	41	265	39			254	33		256	41	278	47
100	304	27	285	29			253	25		269	33	291	41
70	321	16	306	16			274	8		280	12	304	23
50	319	17	310	12						276	12	300	14
MAXIMUM WIND													
Direction - Deg; Speed - Knts; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
200		200		200		200		250		200		175	
250		270		283		283		290		268		264	
300	41	45		35		35		60		66		57	

# Appendix X

TEST NO. 26  
SOUNDING DATE 1 Apr 66 TIME 0000Z

## REPORTING STATIONS

ELI	LAS VEGAS	ROMAIDS	FT. ABSCHELLO	SAN MIGUEL	SAN DIEGO	WINDSON	FUSION
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RAWINSONDE DATA									
Pressure (P) - mb; Temperature - °C									
P	F	Temp	P	Temp	P	Temp	P	Temp	P

Standard Levels									
150		-57.8		-58.5		-58.3		-56.8	
100		-63.4		-64.1		-64.7		-64.6	
70		-64.0		-64.8		-65.3		-66.5	
50		-66.8		-67.5		-68.2		-69.5	

Significant Levels									
126		-61.2	100	-64.1		100	-64.7	147	-56.9
110		-63.4	86	-66.6		66	-65.5	132	-60.6
105		-63.5						100	-64.6
100		-63.4						76	-67.7
64		-64.3							-65.9
61		-63.5							-67.6
									-60.5

RAWINSONDE DATA									
Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir

Standard Levels									
150	276	31	268	32		242	31	257	43
100	297	31	272	29		247	19	262	31
70	323	17	281	19		262	8	272	17
50	313	10	325	10		224	2	312	12

MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
175		175		175		175		175	
288		285		239		253		250	
37		35		33		45		39	



TEST No. 58  
 SOUNDING DATE 16 Apr 66 TIME 0000Z

REPORTING STATIONS																		
HLO		LHEB																
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C																		
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels																		
150		-63.5		-61.9														
100		-70.1		-70.6														
70		-67.2		-64.5														
50		-61.0		-62.0														
Significant Levels																		
118		-58.2	112	-69.8														
107		-71.7	88	-71.5														
96		-72.7	70	-64.5														
73		-68.0	57	-64.0														
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																		
150	276	54	281	96														
100	283	35	282	89														
70	340	4	271	6														
50	082	10	84	12														
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb																		
Alt	172		175															
High	290		284															
Speed	78		72															

# Appendix X

TEST No. 79  
SOUNDING DATE 19 Apr 66 TIME 0000Z

REPORTING STATIONS														
STATION		NAME		LAT		LONG		TIME		DATE		TIME		
RADIOSONDE DATA														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
190		-66.2		-65.3										
100		-69.4		-68.9										
70		-63.5		-59.8										
50		-62.4		-62.0										
Significant Levels														
190		-69.0	147	-65.5										
114		-69.9	126	-65.1										
107		-66.8	110	-69.8										
101		-69.4	106	-68.5										
83		-69.4	92	-69.6										
75		-61.8	84	-66.7										
61		-66.8	78	-68.5										
55		-63.1	70	-59.8										
			65	-63.5										
RAWINSONDE DATA														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Wind direction - Deg; Speed - Knots; Altitude - mb														
Standard Levels														
190	260	154	275	56										
100	258	76	277	54										
70	259	41	295	52										
50	96	18	001	4										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	175		190											
100	257		273											
Speed	170		56											

TEST NO. 60SOUNDING DATE 21 Apr 66 TIME 0000Z

REPORTING STATIONS																	
RADIOSONDE DATA		Pressure (P) - mb; Temperature - °C															
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels																	
150		-63.6		-63.3													
100		-69.6		-69.6													
70		-69.9		-65.2													
50		-60.6		-61.0													
Significant Levels																	
144		-62.3	134	-65.8													
100		-69.6	126	-63.7													
91		-71.9	111	-67.9													
69		-65.6	85	-72.4													
63		-60.7	82	-66.6													
52		-62.0	72	-67.0													
			66	-61.8													
			79	-60.1													
			52	-61.5													
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
150	267	89	283	98													
100	276	143	320	25													
70	230	12	286	19													
50	72	4	246	4													
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150	175		125														
100	265		293														
70	299		70														

## Appendix X

TEST No. 61  
 SOUNDING DATE 22 Apr 66 TIME 0000Z

REPORTING STATIONS														
RADIOSONDE DATA														
Pressure (P) - mb; Temperature - °C														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-62.8												
100		-71.8												
70		-64.1												
50		-59.3												
Significant Levels														
100		-71.8	100		-71.5									
91		-69.2	94		-69.0									
83		-72.7	82		-71.5									
68		-62.8	58		-60.3									
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	273	51	282	35										
100	278	23	290	23										
70	212	6	240	6										
50	124	15	139	14										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	203		300											
Hdg	262		304											
Speed	70		41											

TEST No. 62  
 SOUNDING DATE 23 Apr 66 TIME 0000Z

REPORTING STATIONS														
HILLO I HHS														
RADIOSONDE DATA														
Pressure (P) - mb; Temperature - °C														
P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-63.6		-62.1										
100		-72.0		-72.4										
70		-66.7		-66.9										
50		-61.9		-58.3										
Significant Levels														
107		-72.3	119	-69.0										
81		-72.0	97	-73.0										
60		-61.9	80	-72.5										
50		-61.9	76	-67.6										
			70	-66.9										
			65	-61.0										
			52	-58.2										
ZAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	277	51	280	41										
100	286	23	282	21										
70	170	4	236	8										
50	96	21	133	12										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	150		150											
Dir	277		280											
Speed	51		41											

TEST No. 63SOUNDING DATE 26 Apr 66 TIME 0000Z

REPORTING STATIONS																	
SITE		LINE															
RADIOSONDE DATA																	
		Pressure (p) - mb; Temperature - °C															
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels																	
150		-64.6		-65.5													
100		-68.8		-70.9													
70		-66.7		-67.5													
50		-57.1		-52.1													
Significant Levels																	
150		-66.5	150	-65.6													
100		-68.6	104	-71.0													
84		-72.2	90	-70.7													
68		-69.8	80	-67.2													
60		-66.7	75	-69.6													
50		-57.1	64	-63.1													
RAWINSONDE DATA																	
		Wind direction - Deg; Speed - Knots; Altitude - mb															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
150	296	45	293	54													
100	282	52	294	31													
70	280	14	42	8													
50	97	18	104	28													
MAXIMUM WIND																	
Alt	100	150															
100																	
150																	
Speed	52																

TEST No. 6A  
 SOUNDING DATE 27 Apr 66 TIME 0000Z

REPORTING STATIONS																	
HID		LTIME															
RADIOSONDE DATA																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C																	
Standard Levels																	
150				-64.0													
100				-68.8													
70				-66.8													
50				-60.5													
Significant Levels																	
100				-68.8	149			-63.3									
88				-71.0	100			-69.6									
					83			-69.6									
					67			-62.0									
					64			-63.2									
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
150	279	45	267	35													
100	270	23	279	25													
70	186	4	15	6													
50	102	14	128	10													
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
175			150														
105			267														
Speed	51		35														

# Appendix X

TEST No. 65  
SOUNDING DATE 28 Apr 66 TIME 0000Z

REPORTING STATIONS														
HULL		LITHIC												
RADIOSONDE DATA														
P	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-60.9		-60.6										
100		-69.0		-70.1										
70		-67.2		-68.7										
50		-64.3		-61.3										
Significant Levels														
11		-69.6	115	-60.3										
60		-66.5	93	-71.0										
			69	-64.3										
			57	-64.3										
			34	-61.8										
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	272	58	269	54										
100	270	29	259	23										
70	221	10	241	21										
50	95	14	124	6										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	200		150											
Hgt	257		269											
Speed	62		54											



TEST No. 66SOUNDING DATE 29 Apr 66 TIME 0000Z

## REPORTING STATIONS

HULL		LINE		PRESSURE (F) - mb; Temperature - °C														
P	F	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp
Standard Levels																		
150																		
100																		
70																		
50																		
Significant Levels																		
128																		
123																		
100																		
57																		
RAWINSONDE DATA																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																		
150	271	122	268	95														
100	262	49	262	39														
70	195	12	277	25														
50	90	10	92	6														
MAXIMUM WIND																		
Alt	200		150															
Dir	273		268															
Speed	124		95															

TEST No. 67SOUNDING DATE 30 APR 66 TIME 0000Z

## REPORTING STATIONS

FIELD		LAT/LONG		PRESSURE (P) - mb; TEMPERATURE - °C															
				P				Temp				P				Temp			
				P				Temp				P				Temp			
<b>RADIOSONDE DATA</b>																			
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
<b>Standard Levels</b>																			
190																			
100																			
70																			
50																			
<b>Significant Levels</b>																			
132																			
116																			
100																			
94																			
84																			
74																			
<b>RAWINSONDE DATA</b>																			
				Wind direction - Deg; Speed - Knots; Altitude - mb															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
<b>Standard Levels</b>																			
150	273	122	265	89															
100	264	52	268	43															
70	253	14	243	19															
50	137	8	127	8															
<b>MAXIMUM WIND</b>																			
				Direction - Deg; Speed - Knots; Altitude - mb															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
200			175																
100			266																
50			132																

TEST No. 68

SOUNDING DATE 3 MAY 66 TIME 0000Z

REPORTING STATIONS															
HID		LIRS													
RADIOSONDE DATA															
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C															
Standard Levels															
190		-63.4		-62.6											
100		-68.3		-65.2											
70		-63.2		-63.2											
50		-61.1		-59.6											
Significant Levels															
110		-64.8	137	-64.1											
94		-70.6	100	-65.2											
68		-62.7	78	-64.2											
59		-64.3	70	-63.2											
			65	-59.3											
			61	-60.9											
			52	-58.3											
RAWINSONDE DATA															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Wind direction - Deg; Speed - Knots; Altitude - mb															
Standard Levels															
190	290	45	266	31											
100	297	31	266	27											
70	210	8	256	8											
50	80	12	83	12											
MAXIMUM WIND															
Alt	175		190												
Dir	261		266												
Speed	52		31												
Direction - Deg; Speed - Knots; Altitude - mb															

SOUNDING DATE 5 MAY 66 TIME 0002

## REPORTING STATIONS

[illegible]

TEST No. 70  
 SOUNDING DATE 6 May 66 TIME 0000Z

REPORTING STATIONS											
HILLO		LARGE									
RADIOSONDE DATA											
P	F	Temp	F	Temp	F	Temp	F	Temp	F	Temp	Temp
Pressure (P) - mb; Temperature - °C											
Standard Levels											
150		-67.8		-67.5							
100		-72.1		-70.4							
70		-65.9		-63.4							
50		-61.8		-61.8							
Significant Levels											
124		-74.9	131	-71.7							
100		-72.1	108	-69.5							
80		-71.3	97	-71.5							
67		-64.1	85	-71.5							
63		-66.4	74	-63.7							
			54	-62.8							
RAWINSONDE DATA											
Wind direction - Deg; Speed - Knots; Altitude - mb											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
150	286	95	280	80							
100	271	43	279	51							
70	196	6	272	6							
50	60	10	110	12							
MAXIMUM WIND											
Direction - Deg; Speed - Knots; Altitude - mb											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
175		175									
279		280									
Speed	99		84								

# Appendix X

TEST No. 71  
SOUNDING DATE 7 May 66 TIME 0000Z

REPORTING STATIONS																	
HULL		NAME															
RADIOSONDE DATA																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C																	
Standard Levels																	
150		-67.8															
100		-73.9															
70		-66.1															
50		-58.5															
Significant Levels																	
134		-71.1	130	-67.3													
123		-69.8	100	-72.6													
102		-74.6	68	-68.4													
90		-70.8	80	-70.9													
85		-72.6	66	-62.7													
67		-64.6	56	-62.8													
63		-65.8															
50		-58.5															
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
150	289	72	285	15													
100	293	19	280	27													
70	170	4	245	8													
50	125	12	127	12													
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
175			175														
289			276														
82			56														

TEST No. 72  
 SOUNDING DATE 10 May 66 TIME 0000Z

REPORTING STATIONS														
HDLG		LDRB												
RADIOSONDE DATA														
Pressure (p) - mb; Temperature - °C														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-66.6												
100		-75.8		-71.5										
70		-67.7		-65.9										
50		-61.8		-60.7										
Significant Levels														
120		-74.8	129	-71.9										
102		-75.7	118	-69.6										
85		-76.4	100	-71.5										
71		-67.7	86	-73.1										
63		-66.9	67	-64.3										
			60	-65.0										
			55	-61.2										
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	256	56	264	80										
100	293	19	258	21										
70	21	6	112	6										
50	51	18	94	14										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	150		150											
Dir	256		264											
Speed	56		80											

TEST No. 71  
 SOUNDING DATE 11 May 66 TIME 0000Z

REPORTING STATIONS											
HILA		LIRNE		HILA (CONT.)							
RADIOSONDE DATA											
P	2	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C											
Standard Levels											
150		-69.3		-68.4							
100		-74.5		-70.7							
70		-69.0		-64.5							
50		-60.2		-61.5							
Significant Levels											
144		-72.0	146	-69.5							
131		-74.3	112	-74.2							
116		-73.6	109	-68.8							
105		-77.0	100	-70.7							
99		-74.1	93	-71.8							
94		-75.9	69	-64.0							
90		-71.2	64	-69.3							
75		-71.5									
66		-67.2									
(Cont.)											
RAWINSONDE DATA											
Wind direction - Deg; Speed - Knts; Altitude - mb											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
150	288	78	283	76							
100	260	39	250	39							
70	109	12	242	6							
50	68	14	85	16							
MAXIMUM WIND											
Direction - Deg; Speed - Knts; Altitude - mb											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
200			175								
284			275								
85			93								



TEST No. 74

SOUNDING DATE 13 May 66 TIME 0000Z

REPORTING STATIONS																	
HID		LIRE															
RADIOSONDE DATA																	
P	P	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F
Pressure (P) - mb; Temperature - °C																	
Standard Levels																	
150		-67.7															
100		-68.4															
70		-65.3															
50		-63.4															
Significant Levels																	
140		-72.0	110	-73.1													
117		-75.8	96	-57.2													
101		-68.1	79	-68.2													
80		-72.5	77	-64.5													
77		-66.8	56	-62.9													
58		-62.2															
50		-63.4															
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
150	276	85	264	70													
100	267	33	266	31													
70	109	21	94	10													
50	103	39	117	19													
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	150		175														
Dir	276		266														
Speed	85		76														

# Appendix X

TEST No. 75  
SOUNDING DATE 16 Mar 66 TIME 0000Z

REPORTING STATIONS																	
KTEL		LTIME															
RADIOSONDE DATA																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C																	
Standard Levels																	
150		-1.7		-67.8													
100		-2.9		-68.1													
70		-5.8		-63.0													
50		-10.4		-62.4													
Significant Levels																	
121	-75.2	137	-71.9														
115	-72.4	100	-68.1														
84	-68.6	52	-63.3														
76	-64.8	73	-63.7														
72	-66.3	63	-61.0														
53	-60.0	53	-53.0														
RAWINSONDE DATA																	
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Standard Levels																	
150	273	87	272	85													
100	260	96	257	47													
70	127	15	202	14													
50	83	37	91	18													
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
AR	175		175														
Dir	276		268														
Speed	95		87														

TEST No. 76  
 SOUNDING DATE 17 MAY 66 TIME 0000Z

REPORTING STATIONS																	
BULO		LIBRE															
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels																	
150		-68.3		-62.9													
100		-68.3		-64.5													
70		-66.2		-62.7													
50		-58.3		-57.3													
Significant Levels																	
136		-72.5	142	-63.8													
110		-69.2	126	-67.8													
103		-71.3	105	-63.4													
96		-66.6	94	-65.7													
87		-67.7	90	-63.2													
73		-64.4	82	-65.9													
66		-68.8	77	-63.0													
53		-58.1	56	-61.8													
			52	-57.3													
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
150			280	89													
100			269	27													
70			134	12													
50			65	14													
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb																	
Alt			290														
150			265														
100			126														

## REPORTING STATIONS

280

## REPORTING STATIONS

[illegible]



TEST No. 82  
 SOUNDING DATE 7 Jul 66 TIME 0000Z

REPORTING STATIONS																	
HELLO		LINES															
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels																	
190		-67.6		-68.6													
100		-72.9		-70.0													
70		-68.9		-66.0													
90		-60.9		-60.4													
Significant Levels																	
114		-73.5	137	-68.5													
75		-70.9	113	-67.9													
63		-68.4	102	-70.2													
			67	-69.4													
			80	-65.6													
			74	-67.5													
			65	-63.8													
			58	-64.0													
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels																	
190	207	29	184	18													
100	211	19	201	14													
70	100	19	49	12													
90	88	31	97	31													
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
125		50															
222		67															
47		31															

# Appendix X

TEST No. 81  
SOUNDING DATE 9 Jun 66 TIME 0000Z

## REPORTING STATIONS

HULL		L-THIE																			
RADIOSONDE DATA																					
Pressure (P) - mb; Temperature - °C																					
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	
Standard Levels																					
150		-64.7		-65.1																	
100		-73.8		-68.2																	
70		-70.6		-68.0																	
50		-61.3		-59.7																	
Significant Levels																					
121		-72.8	145	-66.3																	
102		-73.0	105	-69.2																	
91		-77.9	100	-68.2																	
65		-70.2	85	-71.4																	
62		-64.1	62	-66.0																	
55		-65.9																			
RAWINSONDE DATA																					
Wind direction - Deg; Speed - Knots; Altitude - m																					
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Standard Levels																					
150	247	43	246	31																	
100	174	12	162	12																	
70	93	25	94	19																	
50	93	37	84	31																	
MAXIMUM WIND																					
Direction - Deg; Speed - Knots; Altitude - m																					
AR	175		200																		
150	250		231																		
Speed	95		60																		



TEST No. 86  
 SOUNDING DATE 16 Jun 66 TIME 0000Z

REPORTING STATIONS													
ALICE ISLAND		WALCOUR		CHICK- CHURCH		BACUL ISLAND		CHABA		KOROR			
RADIOSONDE DATA													
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C													
Standard Levels													
150		-56.4		-56.3		-58.1		-60.8					
100		-58.7		-57.6		-57.6		-65.2					
70		-59.4		-59.0		-56.9		-63.5					
50		-59.8				-57.6		-60.6					
Significant Levels													
140	-57.8	139	-55.5	146	-58.4	128	-65.4						
92	-60.0	118	-58.8	60	-56.5	119	-65.4						
		87	-56.4			112	-62.9						
		64	-60.1			92	-67.0						
		52	-57.2			64	-62.3						
						58	-64.5						
						32	-60.1						
RAWINSOON DATA													
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Wind direction - Deg; Speed - Knots; Altitude - mb													
Standard Levels													
150	214	28			233	26			235	34	228	26	
100					242	27			237	26	230	26	
70					248	16			246	16	226	16	
50					257	18			256	20	232	20	
MAXIMUM WIND													
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Direction - Deg; Speed - Knots; Altitude - Kilometers													
150	32.1				11.6				11.8		11.1		
100	248				215				230		211		
70	14				38				14		14		

# Appendix X

TEST No. BT  
SOUNDING DATE 17 Jan 66 TIME 0000Z

REPORTING STATIONS														
ALICE STATION	MILITARY	CIVILIAN- CHURCH	MAJOR INLAND	CHURCH	SEASIDE									
RADIOSONDE DATA														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-57.3				-61.1								
100		-60.8				-66.9								
70		-61.6				-63.2								
50		-58.3				-62.6								
Significant Levels														
124		-56.5	123			-56.3								
94		-62.0	60			-59.3								
78		-63.0												
64		-58.4												
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	250	63			253	32	255	28						
100	250	40			249	32	253	32						
70					258	15	254	24						
50					260	12	257	10						
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - Kilometers														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
13.7					14.3			15.2						
250					259			254						
63					35			36						

\* Also at 15.8 Kilometers

TEST No. 88  
 SOUNDING DATE 21 Jun 66 TIME 0000Z

REPORTING STATIONS									
WATERS	CURRENT- CURRENT	TEMP- CURRENT	WIND	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C									
P	P	P	P	P	P	P	P	P	P
<b>Standard Levels</b>									
150	-33.8	-50.0	-48.6						
100	-38.6	-56.5	-57.6						
70	-57.9	-57.4	-57.1						
50	-59.1	-57.9	-55.8						
<b>Significant Levels</b>									
136	-56.2	-56.4	-56.4	134	-48.5				
98	-59.0	-59.5	-58.2	98	-58.2				
63	-57.4	-55.0	-53.6	80	-53.6				
55	-59.8		-60.3	60	-60.3				
			-55.1	58	-55.1				
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
<b>Standard Levels</b>									
150		266	33	288	40	259	27	277	29
100		271	17	280	31	266	20	263	22
70		283	16	315	18	258	07	274	09
50		327	14	316	20	021	08	005	09
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - Kilometers									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150		10.4		9.2		3.3		0.7	
100		312		285		136		137	
70		47		74		32		41	

\* Also at 15.2 Kilometers from 287 Deg.

# Appendix X

TEST No. 89  
SOUNDING DATE 22 Jan 66 TIME 0000Z

REPORTING STATIONS													
AZER INT'L		WATGUB		CHERT- CHERCH		BACIL ISLAND		CHALCA		KALCHER			
RADIOSONDE DATA													
Pressure (P) - mb; Temperature - °C													
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels													
150		-50.3		-47.3		-48.9							
100		-51.9		-50.7		-54.3		-48.1					
70		-60.2		-59.6		-58.6		-61.1					
50		-58.6		-56.3		-58.5		-59.8					
Significant Levels													
81	-61.1	134	-49.0	134	-51.5	135	-60.2						
	110	-58.4	106	-54.3	112	-55.5							
	98	-58.6	80	-53.6	109	-61.5							
	94	-53.5	69	-59.3	79	-67.8							
	79	-59.0	62	-56.7									
	66	-59.8											
	55	-55.9											
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150			308	38			304	46	300	44			
100			310	42			309	28	282	42			
70			295	21			316	10	242	10			
50			294	19			300	12	327	16			
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - Kilometers													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150			302	38			304	46	300	44			
100			310	42			309	28	282	42			
70			295	21			316	10	242	10			
50			294	19			300	12	327	16			

TEST No. 90  
 SOUNDING DATE 24 Jan 66 TIME 0000Z

REPORTING STATIONS														
CARPENTERS ISLANDS		ALICE ILET L		VALTOURD		CHERIST-CHERIST		OHALEA		KELEHER				
RADIOSONDE DATA														
Pressure (P) - mb; Temperature - °C														
P	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp	P	Temp
Standard Levels														
150		-44.6				-52.3				-47.8				
100		-49.0								-49.3				
70										-53.9				
50										-53.3				
Significant Levels														
84		-50.7			119	-46.7			148	-48.0				
									40	-45.6				
									125	-50.3				
									85	-48.4				
									75	-54.5				
									53	-51.4				
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150														
100														
70														
50														
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150														
100														
70														
50														

# Appendix X

TEST No. 91  
SOUNDING DATE 27 Jan 66 TIME 0000Z

REPORTING STATIONS														
ALICE TEL'L		WATSON		CHERRY- CHERRY		GRACE		ROSEBUD						
RADIOSONDE DATA														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-51.2		-50.0		-51.1								
100		-50.2		-50.0		-51.0								
70		-51.8				-50.8								
50		-56.8				-54.8								
Significant Levels														
128	-48.4	117	-47.6	63	-50.8									
		76	-54.4	54	-55.0									
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knts; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150				274	28									
100				292	33									
70				297	42									
50				298	42									
MAXIMUM WIND														
Direction - Deg; Speed - Knts; Altitude - Kilometers														
Alt				8.7		9.1		9.1						
Hdg				349		337		336						
Speed				68		110		92						

TEST No. 92  
 SOUNDING DATE 29 Jan 66 TIME 0000Z

REPORTING STATIONS												
COLUMBIA STATION	ALICE TIT'L	SATURN	CHESTER- CHERRY	JOHN- CARROLL	OSWALD	REXBUR						
RADIOSONDE DATA												
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C												
Standard Levels												
150		-50.1		-50.0		-50.0		-51.4				
100				-52.0		-50.5						
70				-54.0		-53.5						
50						-53.7						
Significant Levels												
148	-59.7		139	-49.4	116	-55.4	110	-50.8				
115	-52.5		124	-48.9	100	-50.5						
110	-51.1		111	-52.5	94	-50.9						
			100	-52.0	85	-47.4						
			81	-57.1	62	-57.2						
			70	-54.0	57	-52.2						
RAWINSONDE DATA												
Wind direction - Deg; Speed - Knots; Altitude - mb												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
150			248	34	250	53	275	27				
100			275	49	274	57	273	32				
70			282	32	281	41	296	53				
50			290	46	281	67	373	16				
MAXIMUM WIND												
Direction - Deg; Speed - Knots; Altitude - Kilometers												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150			6.8		8.1		6.7					
100			25		24		32					
70			67		100		56					

TEST No. 93

SOUNDING DATE 30 Jan 66 TIME 0000Z

REPORTING STATIONS														
APPC EXT'L	WATER	CHERRY- CREEK	CHERRY	TEMPERATURE - °C										
P	F	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp	P	Temp
Standard Levels														
120		-56.1		-57.0		-57.7								
110		-56.2		-57.2		-58.1								
70		-57.0		-58.6		-59.1								
50		-57.0		-58.1										
Significant Levels														
130		-54.2	134	-57.9	123	-54.6								
65		-54.2	128	-58.1	82	-57.9								
77		-58.5	115	-54.1	72	-57.8								
58		-53.5	109	-52.6	65	-53.8								
			85	-56.1										
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
130				215	68	217	50							
110				240	61	236	31							
70				255	32	270	34							
50				265	48									
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - Kilometers														
Alt				12.0		9.7								
Dir				205		203								
Speed				15		105								



TEST No. 94  
 SOUNDING DATE 1 JUL 66 TIME 0000Z

## REPORTING STATIONS

RAVINSOON		CROSS- CHECK		INTER- CARGILL		CHARTER		POSITION	
PRESSURE (P) - mb; Temperature - °C									
P	F	Temp	F	Temp	F	Temp	F	Temp	F
Standard Levels									
150		-59.8		-59.7		-60.2			
100		-60.0		-60.5		-59.1			
70		-57.7		-59.6		-60.2			
50		-57.5		-58.2		-61.3			
Significant Levels									
125		-57.7	140	-58.7	119	-58.4			
91		-60.6	108	-60.9					
82		-57.5	82	-57.6					
51		-57.9	60	-61.1					
			55	-57.3					
Wind direction - Deg; Speed - Knots; Altitude - mb									
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels									
150			213	49	230	50	213	51	215
100			217	38	232	39	219	34	229
70			215	33	235	46	206	29	
50			239	35	247	36	250	27	
MAXIMUM WIND									
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150			11.1	10.8			11.5	10.8	
100			209	25			202	207	
70			61	61			61	61	
50									
Direction - Deg; Speed - Knots; Altitude - Kilometers									
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150			11.1	10.8			11.5	10.8	
100			209	25			202	207	
70			61	61			61	61	
50									

\* Also at 11.8 Kilometers from 200 Deg.

# Appendix X

TEST No. 52  
SOUNDING DATE 8 Jul 66 TIME 0300Z

REPORTING STATIONS														
INDEX	NAME	LOCATION	COUNTRY	NAUTIC. MILES	OFFICIAL	REMARKS								
RADIOSONDE DATA														
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Pressure (h) - mb; Temperature - °C														
Standard Levels														
150														
100														
70														
50														
Significant Levels														
133														
90														
76														
57														
RAWINSOONDE DATA														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150														
100														
70														
50														
MAXIMUM WIND														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
10.5														
396														
80														

TEST No. 96  
 SOUNDING DATE 11 JUL 66 TIME 0000Z

REPORTING STATIONS													
AUX TEMP		WATSON		CHERRY- CRITCH		MAGUI- THERM		OHAUSA		KELKINE			
<b>RADIOSONDE DATA</b> Pressure (h) - mb; Temperature - °C													
P	h	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels													
150		-50.0		-46.0		-44.0		-43.8					
100		-54.3		-52.9		-51.9		-51.4					
70		-57.3		-58.0		-56.4		-53.0					
50		-56.3				-56.1		-53.8					
Significant Levels													
100	-51.9	106	-51.3	98	-52.3	143	-55.1						
114	-51.6	84	-54.0	62	-52.3	97	-57.6						
83	-57.8	68	-59.0	54	-57.4								
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150			277	24		282	40						
100			279	31		287	36						
70			271	26		291	24						
50			292	15			14						
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - Kilometers													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150			10-7			6-9							
100			274			281							
70			37			73							

# Appendix X

TEST No. 97  
SOUNDING DATE 12 JUL 66 TIME 1000Z

REPORTING STATIONS														
ALICE REF'L	WALTON	CHERRY- CREEK	CHRYSA	ALBERS										
RABIOSONDE DATA														
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150	-72.9	-47.3		-47.9										
100	-56.1	-31.4		-30.9										
70	-57.6	-33.0		-34.9										
50	-57.5	-33.9		-35.5										
Significant Levels														
	137	149.6	108	-47.9										
	112	-49.4	95	-32.5										
	84	-50.1	59	-36.0										
	59	-53.0												
	53	-56.4												
RAWINSONDE DATA														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150				256	34	253	47							
100				271	20	270	33							
70				270	20	266	11							
50				268	26	262	24							
MAXIMUM WIND														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150				9.1		9.1								
100				220		223								
70				72		70								

TEST No. 92

SOUNDING DATE 18 JUL 66 TIME 2300Z

REPORTING STATIONS									
BOONDA		CORAL		LAWSON		APACALINE		MC. GABRIEL	
RADIOSONDE DATA									
Pressure (F) - mb; Temperature - °C									
P	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels									
150		-64.2		-81.5		-52.5		-55.4	
100		-64.2		-60.7		-58.8		-58.5	
50		-65.8		-61.8		-66.5		-61.1	
20		-65.0		-62.3		-60.8		-60.5	
10		-63.3		-61.8		-59.7		-59.3	
50		-60.5		-62.3		-59.3		-60.4	
Significant Levels									
53		-66.2	133	-61.0	95	-59.5	123	-58.2	200
			129	-60.5	86	-57.7	116	-56.0	131
			106	-59.3	62	-56.5	89	-61.0	114
			93	-61.0	74	-60.9	84	-60.4	102
			76	-64.8			74	-62.4	94
							63	-62.6	64
RAWINSONDE DATA									
Wind direction - Deg; Speed - Knots; Altitude - K FT									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels									
15	270	104		250	16	250	102	270	50
50	260	74		260	33	270	67	260	31
55	260	65		250	27	260	38	260	40
60	300	47		250	30	260	38	260	33
65	200	34		260	15	260	33	260	34
70	180	03		240	06	200	05	260	10
MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - K FT									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
15	30	35		40					
50	260	250		260					
55	260	142		50					

# Appendix X

TEST No. 100

SOUNDING DATE 20 JUL 66 TIME 2300Z

REPORTING STATIONS													
CORR	WORMBA	WLOG	LANDING	CORR-VALUE	NOZZ	CHARACTER (Cont.)							
RADIOSONDE DATA													
P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C													
Standard Levels													
150	-61.5	-62.3	-56.7	-55.8	-61.7	-62.5							
100	-61.8	-63.7	-60.2	-61.9	-71.0	-63.7							
80	-66.5	-63.3	-59.2	-61.1	-69.5	-66.6							
70	-62.2	-63.8	-60.0	-59.9	-66.1	-62.8							
60	-61.9	-63.1	-59.2	-59.2	-64.3	-60.9							
50	-60.8	-60.3	-59.6	-59.6	-60.6								
Significant Levels													
126	-61.8	111	-69.2	113	-61.7	135	-70.3	119	-69.0			65	-63.0
91	-63.8	118	-63.1	87	-58.3	126	-69.7	110	-67.8			55	-65.2
64	-61.1	112	-59.5			114	-73.5	103	-65.1				
		91	-63.7			107	-73.3	94	-64.5				
						104	-74.2	88	-66.6				
						96	-69.8						
						85	-71.3						
						82	-67.7						
						77	-69.5						
						(Cont)							
RAW/SONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - I. Ft													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
45		250	111	250	75	260	68	250	108	250	80		
50		270	100	260	58	270	45	260	98	250	84		
55		280	57	240	22	270	30	270	90	250	27		
60		240	18	260	20	270	33	260	70	270	18		
65		300	12	260	10	260	10	250	32				
70				270	8	280	20	240	25				
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - K Ft													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
35		35		35		40		30		35			
230		250		250		250		240					
110		110		104		126		152					

TEST No. 101  
SOUNDING DATE 25 JUL 66 TIME 2300Z

REPORTING STATIONS															
AIRBASE	ROOMER	LAVERGE	CHARGE- VILLZ	MOORE	CUBAR	WAGGA	MT. GARIBER								
RADIOSONDE DATA															
P	P	P	P	P	P	P	P	P	P	P	P	P	P		
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp		
Pressure (P) - mb; Temperature - °C															
Standard Levels															
150	-50.8	-59.0	-49.3	-66.3	-57.4	-54.0	-49.4	-50.7							
100	-55.4	-59.3	-56.0	-69.2	-59.3	-57.3	-54.2	-52.4							
80	-55.2	-62.6	-52.1	-66.5	-62.1	-60.0	-57.1	-50.3							
70	-55.9	-63.8	-53.9	-63.8	-63.3	-60.9	-56.3	-54.5							
60	-55.7	-58.1	-53.5	-61.7	-58.8	-60.2	-56.3	-54.5							
50	-55.2	-58.3	-54.4	-60.7	-59.2	-53.4	-52.6								
Significant Levels															
127	-50.5	110	-60.7	128	-49.3	143	-66.9	138	-60.4	118	-61.6	139	-49.4	122	-48.2
76	-52.6	73	-63.9	90	-52.6	121	-70.4	135	-60.2	93	-59.5	122	-55.0	83	-52.9
		44	-54.5			110	-66.2	115	-62.8	86	-57.3	114	-53.4	54	-56.1
						92	-63.8	108	-60.2			77	-58.3		
						83	-67.5	92	-62.1			73	-55.8		
								66	-58.8			62	-57.4		
								57	-61.1						
								54	-59.6						
RAWINSONDE DATA															
Wind direction - Deg; Speed - Knots; Altitude - K FT															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels															
45	270	97	260	120	280	98	260	112	260	109		270	68	260	77
50	270	97	260	90	290	60	290	84	290	65		280	53	270	65
55	270	70	260	50	290	61	270	75	270	40		270	47	280	48
60	270	45	260	40	290	40	290	46	270	37		280	22	300	38
65	270	30	260	26	280	40	290	31	280	26		250	35	280	34
70	270	23			280	28	260	5				220	4	290	23
MAXIMUM WIND															
Direction - Deg; Speed - Knots; Altitude - K FT															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
40		35		25		40		35		35		40		40	
270		260		310		290		290		260		270		280	
118		159		67		113		156		154		90		78	

TEST NO. 102

SOUNDING DATE 27 JUL 66 TIME 2300Z

REPORTING STATIONS														
WAGTA	NRZ	LORD HOWE ISLAND	LAVERGOF	BAILEY DAM	CHARLEVILLE	COBAR	WILLIAMSVILLE							
RADIOSONDE DATA														
P	F	Temp	F	Temp	F	Temp	F	Temp	F	Temp	F	Temp	F	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-50.2		-57.9		-56.0		-53.0		-62.8		-64.0		-59.0
100		-52.5		-63.4		-63.3		-53.5		-66.0		-65.3		-57.1
80		-57.9		-61.6		-59.5		-54.5		-61.0		-61.1		-55.8
70		-57.9				-56.0		-55.2		-63.5		-64.1		-58.8
60		-56.2				-56.0		-56.0		-61.6		-62.4		-57.4
50		-51.5				-53.5		-53.5		-58.0		-59.6		-51.7
Significant Levels														
123		-54.0	144	-58.1	54	-60.0	138	-51.3	125	-66.7	123	-66.7	122	-55.8
55		-52.9	132	-61.1			122	-53.5	92	-64.4	123	-64.1	94	-57.8
			110	-61.4			112	-52.4	83	-65.3	109	-65.8		104
			93	-65.3			83	-51.9	73	-64.8	107	-64.3		91
			86	-59.8					63	-65.3	86	-67.2		83
			74	-63.3					56	-63.5	54	-63.0		78
														55
														58.8
RAWINSOON DATA														
Wind direction - Deg; Speed - Knots; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
45	260	65			290	161	290	57	290	141	100	143		280
50	260	70			290	99	290	54	290	110	110	110		280
55	270	48					260	41	290	80	280	90		280
60	260	33					280	35			290	53		84
65	290	45					280	40			270	33		
70	270	18					270	34			270	17		
Standard Levels														
Direction - Deg; Speed - Knots; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
40			35		35		30		30		45		35	40
290			280		290		190		290		300		260	260
88			165		180		102		153		143		158	121
MAXIMUM WIND														



TEST No. 103

SOUNDING DATE 28 Jul 66 TIME 2300Z

CHERRYVILLE		MORIS		LAVERTON		WAGA		WILLIAM TOWN		BAGZ FARM		COMAR		LORD HOWE ISLAND		
<b>REPORTING STATIONS</b>																
<b>RADIOSONDE DATA</b>																
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C																
<b>Standard Levels</b>																
150		-57.2		-56.4		-56.9		-57.0		-57.0		-56.6		-56.0		
100		-59.6		-58.3		-57.1		-58.5		-59.6		-58.6				
50		-55.8		-55.3		-57.0		-59.0		-56.8		-51.4				
70		-55.5		-52.8		-58.0		-60.2		-56.8		-51.9				
60		-52.3		-59.1		-59.1		-58.5		-58.7		-50.8				
50		-58.8		-59.1		-59.1		-57.0		-50.4		-58.1				
<b>Significant Levels</b>																
151		-59.0	143	-63.6		143	-55.7	142	-58.3	138	-60.1	120	-60.0	121	-61.4	
120		-56.5	136	-61.7		139	-55.9	138	-56.9	120	-57.7	107	-52.6			
125		-57.2	125	-65.0		116	-54.3	122	-59.6	110	-59.6	88	-60.6			
121		-55.0	120	-63.4		96	-58.4	104	-60.2	97	-71.0					
108		-57.1	114	-65.6		77	-56.1	61	-56.9	92	-58.3					
90		-71.0	110	-63.4				58	-60.2	66	-66.8					
64		-62.3	95	-65.6												
52		-62.6	91	-63.6												
			76	-66.3												
			67	-63.4												
<b>RAWINSONDE DATA</b>																
Wind direction - Deg; Speed - Knts; Altitude - K Ft																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
<b>Standard Levels</b>																
45	280	114	280	128	250	58	260	60	270	125	280	110		270	130	
50	290	103	270	120	240	37	260	62		310	150			270	125	
55	290	79		230	240	16	250	38		290	110					
60	290	52			210	29	280	43		270	97					
65	280	28			240	20	250	16								
70	220	40			270	32										
<b>MAXIMUM WIND</b>																
Direction - Deg; Speed - Knts; Altitude - K Ft																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
45		40		35		35		35		50		40		40		
50		280		210		240		260		310		280		280		
Speed	114	150		70		103		170		150		162		182		

TEST No. 104

SOUNDING DATE 1 Aug 66 TIME 2300Z

## REPORTING STATIONS

REPORTER	LAUNCH	COLOR	VILLAGE	NAME	PRESSURE (P) - mb; Temperature - °C													
RADIOSONDE DATA					P	T	P	T	P	T	P	T	P	T	P	T	P	T
Standard Levels																		
150	-52.8	-50.7	-58.6	-59.4	-55.3													
100	-61.9	-58.8	-65.4	-64.1														
80	-62.0	-59.0	-65.6	-64.4														
70	-62.0	-61.3	-65.6	-63.6														
60	-62.0	-64.3	-62.3	-61.8														
50	-59.2	-58.5	-61.0	-58.6														
Significant Levels																		
	122	-59.0	137	-51.8	98	-68.2												
			119	-55.3	84	-64.8												
			90	-57.2														
			56	-63.0														
RAWINSONDE DATA																		
Wind direction - Deg; Speed - Knts; Altitude - I Ft																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																		
45	310	66	300	81			270	88	250	26								
50	290	65	300	56			270	71										
55	290	39	300	78			310	44										
60	290	10	300	44			280	18										
65	290	16	280	21			280	20										
70	270	9	280	21			00	00										
MAXIMUM WIND																		
Direction - Deg; Speed - Knts; Altitude - I Ft																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
30		30		40		35												
310		300		290		270		290										
110		123		127		105		118										

TEST NO. 105

SOUNDING DATE 2 Aug 66 TIME 2300Z

## REPORTING STATIONS

LAUNCHER		WAGON		WILLIAM- TONE		MORSE		COMAR											
RADIOSONDE DATA										Pressure (P) - mb; Temperature - °C									
P	2	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	
Standard Levels																			
150		-50.5		-52.3		-55.9		-61.1		-56.6									
100		-57.2		-58.5		-65.3		-69.1		-64.7									
80		-58.8		-59.1		-67.1		-66.6		-65.1									
70		-56.2		-60.9		-63.3		-61.7		-61.9									
60		-57.9		-61.1		-61.1				-61.8									
50		-58.5		-58.8		-59.8				-60.1									
Significant Levels																			
117		-57.0	131	-58.0				147	-61.2	143	-56.7								
112		-56.8	82	-62.9				138	-62.1	118	-65.6								
107		-56.7						131	-62.1	110	-61.1								
88		-58.5						112	-66.7	95	-61.0								
57		-59.7						91	-59.8										
								86	-67.1										
								85	-66.7										
								75	-66.5										
								68	-67.8										
RAWINSONDE DATA																			
Wind direction - Deg; Speed - Knots; Altitude - F M																			
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Standard Levels																			
15	300	75	230	76	280	110	280	90											
50	290	64	220	98	230	98	300	147											
55	294	49	280	32	230	65	230	28											
60	299	34	300	26	310	142	300	23											
65	290	34	300	22	290	35													
70	280	30	290	18															
MAXIMUM WIND																			
Direction - Deg; Speed - Knots; Altitude - F M																			
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
15	30	35	140		35		35		35										
50	300	280	28		280		280		280										
60	30	160	140		160		160		160										

## REPORTING STATIONS

[illegible]



# Appendix X

TEST No. 108

SOUNDING DATE 8 Dec 66 TIME 2300Z

REPORTING STATIONS												
LAUNCH	CASUALTY	CORAL	WATER	WIND-TOUR	WAVE-TOUR							
<b>RADIOSOUND DATA</b> Pressure (ft) - m; Temperature - °C												
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels												
120		-56.5		-61.3		-59.6		-57.2		-59.9		-60.1
100		-59.8		-69.5		-64.4		-61.0		-61.0		-68.9
80		-58.0		-68.4		-64.4		-59.2		-59.4		-61.6
70		-59.9		-64.7		-61.1		-59.6		-60.2		-61.6
60		-60.8		-64.3		-62.9		-60.0		-60.5		-62.0
50		-60.2		-60.5		-59.8		-57.7		-57.5		-59.6
Significant Levels												
103	-61.2	109	-70.1	114	-66.8	120	-57.9	137	-55.0	151	-67.1	
95	-58.5	90	-70.5	111	-64.8	122	-60.5			92	-70.0	
91	-60.4					118	-60.0			66	-66.5	
						106	-63.2			57	-63.5	
						83	-58.0					
<b>RAWINSOON DATA</b> Wind direction - Deg; Speed - Knots; Altitude - I FT												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
45	260	103	230	63	260	77		240	108	220	59	
50	270	75	230	94	260	67		240	82	260	67	
55	280	60	250	35	260	48		240	55	260	15	
60	280	43	260	25				260	40	260	18	
65	300	38	260	03				260	30	320	07	
70	280	39	260	05				280	25	280	27	
MAXIMUM WIND												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
40		35		40		45		40				
280		290		260		240		240				
116		94		92		108		81				

TEST No. 129

SOUNDING DATE 10 Aug 66 TIME 2300Z

REPORTING STATIONS														
EAGLE FAIR		CHABLE VILLE		WAGDA		COMAR		WILLIAM NOMF						
RADIOSONDE DATA										Pressure (P) - mb; Temperature - °C				
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-61.7		-56.2		-49.6		-49.1		-55.0				
100		-61.0		-62.8		-54.2		-55.4		-56.0				
80		-61.6		-61.0		-54.0		-56.7		-56.0				
70		-61.5		-62.9		-52.1		-56.4		-55.5				
60		-61.7		-59.1		-52.8		-57.7		-57.6				
50		-58.4		-56.6		-54.5		-57.2		-56.0				
Significant Levels														
125		-62.6	146	-57.3	137	-48.2	115	-53.6	131	-52.5				
109		-61.7	132	-57.1	85	-52.5	107	-56.1	118	-51.9				
93		-61.6	112	-61.7	67	-55.3	81	-55.1	84	-50.5				
77		-61.7	102	-62.7	64	-52.5	85	-58.1	65	-61.1				
74		-59.6	97	-61.5	56	-58.4	83	-56.5	61	-56.8				
54		-57.7	72	-57.4										
			61	-62.6										
			52	-58.4										
RAWINSONDE DATA														
				Wind direction - Deg; Speed - Kts; Altitude - K Ft										
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
45	300	152	230	153	310	146			300	105				
20	280	106	300	126	290	73			300	90				
55			300	63	300	36								
60					310	45								
65					310	27								
70														
MAXIMUM WIND														
				Direction - Deg; Speed - Kts; Altitude - K Ft										
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
40			32		20				40					
50			300		230				300					
140			155		53				90				110	

TEST No. 113

SOUNDING DATE 26 Aug 66 TIME 1200Z

## REPORTING STATIONS

MEMORICA	SALT LAKE	GRAND JUNCTION	ELY	LAS VEGAS	POLAR ANDRELO	SAN MIGUEL	BOISE	SPRING	COUNT. BEST PAGE
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## RADIOSONDE DATA

Pressure (P) - mb; Temperature - °C

P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels															
150	-62.2	-62.8	-63.8	-65.0	-65.9	-66.6	-66.5	-61.5							
100	-61.2	-63.0	-65.1	-65.8	-67.2	-69.1	-69.8	-56.2							
70	-57.8	-59.1	-57.6	-58.3	-58.5	-59.3	-58.4	-56.8							
50	-54.6	-55.3	-55.8	-56.4	-56.1	-56.4	-55.1	-52.6							

## Significant Levels

119	-63.6	138	-64.3	130	-63.8	136	-65.7	138	-66.1	149	-66.1	136	-71.0	142	-61.7
107	-59.8	118	-60.6	117	-62.7	120	-68.0	116	-70.4	136	-68.4	120	-72.3	129	-59.8
101	-61.3	100	-63.0	101	-65.2	115	-66.3	110	-66.9	100	-67.2	114	-73.3	122	-61.0
50	-54.6			71	-57.8	104	-67.3	109	-65.0	77	-68.7	99	-69.2	107	-59.2
								100	-65.1	66	-59.4	95	-64.7	88	-60.7
								97	-62.4			74	-59.3	83	-57.3
								82	-63.7			51	-59.1	73	-58.9
								75	-58.5					52	-54.9

## RAWINSCHIDE DATA

Wind direction - Deg; Speed - Knts; Altitude - mb

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																
150	255	54	297	54	299	51	279	43	208	31	235	31	240	33	275	35
100	193	8	334	10	327	21	294	14	310	10	230	12	345	8	300	4
70	090	6	053	4	010	6	064	10	089	8	110	12	092	10	061	2
50	056	10	072	10	082	14	094	16	068	10	090	16	077	23	069	10

## MAXIMUM WIND

Direction - Deg; Speed - Knts; Altitude - mb

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	150		200		175		200		175		175		150		175	200
100	255		294		301		274		266		230		240		275	128
50	54		50		68		51		35		33		33		41	52



TEST No. 112 (CONT.)

**SOUNDING DATE** 24 AUG 66 **TIME** 1200Z

## REPORTING STATIONS

[illegible]

# Appendix X

TEST No. 11A  
 SOUNDING DATE 29 Aug 66 TIME 1200Z

REPORTING STATIONS														
OAKLAND		EUREKA		REY		LAS VEGAS		PT. ANGELES						
RADIOSONDE DATA														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-55.0		-57.1		-61.6		-61.6		-61.7				
100		-59.0		-55.6		-60.7		-60.6		-60.6				
70		-57.8		-56.3		-57.9		-57.9		-57.9				
50		-55.9		-54.3		-55.4		-55.3		-55.3				
Significant Levels														
111	-60.7	120	-60.9	135	-62.4	146	-62.5	161	-63.3					
100	-59.0	112	-61.8	125	-64.0	131	-63.9	110	-61.2					
82	-57.8	110	-59.8	123	-62.3									
79	-55.2	104	-60.9	107	-66.0									
70	-57.8	100	-55.6	100	-60.7									
		95	-57.8	88	-61.7									
		80	-55.0	83	-56.3									
		67	-56.7	79	-59.7									
RAWINSOON DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	233	49	214	60	225	62	222	49	232	66				
100	243	21	226	10	226	14			233	25				
70	288	15	215	8	196	6			203	12				
50	312	10	206	4	029	6			051	4				
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
250		200		200		300		200		200				
217		219		230		225		226		226				
84		78		68		52		82		82				

TEST No. 214

SOUNDING DATE 30 Aug 66 TIME 0000Z

REPORTING STATIONS														
OUTPOST	TIME- MEDIA	ELY	IAS VEGAS	PT. ANGELLO										
RADIOSONDE DATA														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-55.0		-48.4		-56.7		-61.0		-59.0				
100		-59.1		-54.6		-60.8		-61.0		-58.0				
70		-57.2		-53.7		-54.9		-58.2		-56.6				
50		-53.2		-53.3		-54.2		-52.9		-54.8				
Significant Levels														
144		-54.7	136	-53.7	148	-56.4	146	-61.9	132	-60.8				
111		-56.6	134	-55.1	131	-61.4	127	-60.8	110	-58.9				
100		-59.1	100	-54.6	120	-60.4	111	-61.8	100	-61.0				
81		-53.0	81	-57.2	110	-63.0	100	-58.0	90	-60.8				
75		-55.9	70	-53.7	92	-58.8	8	-61.3	76	-55.3				
50		-53.2			90	-55.2	82	-56.9	62	-58.6				
					81	-57.6	75	-59.2						
					64	-53.1	51	-53.0						
RAWINSONDE DATA														
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Wind direction - Deg; Speed - Knots; Altitude - mb														
Standard Levels														
150	256	41	217	33	209	62	222	60	232	56				
100	274	37	219	17	228	31	235	33	227	20				
70	287	17	237	12	238	14	267	17	283	10				
50	171	4	019	10	289	8	146	14	106	14				
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
AR	200		250		175		230		230					
150	282		207		224		224		228					
50	51		43		82		66		74					

TEST No. 115

SOUNDING DATE 30 Aug 66 TIME 1200Z

REPORTING STATIONS													
OAKLAND	UTIME- NDCN	ELI	LAS VEGAS	PT. ANTONIO	SAN EDUARDOS	MANABACCA (CONT.)							
RADIOSONDE DATA													
P	P	P	P	P	P	P							
Pressure (P) - mb; Temperature - °C													
Standard Levels													
150	-54.8	-56.4	-58.6	-61.4	-59.3	-60.5							
100	-57.4	-59.8	-59.6	-61.2	-60.6	-61.8							
70	-55.5	-57.1	-57.2	-57.2	-60.5	-60.9							
50	-54.4	-53.8	-53.0	-57.0	-57.2	-55.7							
Significant Levels													
132	-58.8	140	-54.7	150	-58.6	150	-61.4	112	-60.4	127	-63.4	70	-54.8
100	-57.4	123	-56.5	120	-58.4	138	-60.0	75	-61.1	120	-63.6	62	-55.6
51	-54.2	121	-52.5	108	-57.6	134	-57.7			114	-61.2		
		110	-56.1	100	-59.6	101	-61.4						
		106	-54.9	90	-61.1	81	-58.9						
		96	-57.4	89	-58.5	72	-60.6						
		92	-55.8	85	-59.6	69	-56.0						
		88	-56.3	80	-54.6								
		84	-53.4	71	-57.3								
(Cont.)													
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knts; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed							
Standard Levels													
150	260	37	230	45	226	64							
100	264	25	253	17	229	25							
70	215	14	218	16	211	14							
50	170	6	220	19									
MAXIMUM WIND													
Direction - Deg; Speed - Knts; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed							
250		243		200		175							
261		230		226		232							
52		52		66		47							

TEST No. 115

SOUNDING DATE 31 AUG 66 TIME 0000Z

REPORTING STATIONS									
CALL SIGN	WIND- MICA	ELY	LAS VEGAS	PT. ABRUCCIO					
RADIOSONDE DATA									
P	P	Temp	F	Temp	P	Temp	F	Temp	P
Pressure (F) - mb; Temperature - °C									
Standard Levels									
150		-53.5		-52.5		-56.7		-58.2	
100		-57.0		-55.2		-56.9		-58.1	
70		-55.3		-54.1		-57.1		-56.2	
50		-53.4		-53.1		-57.1		-55.5	
Significant Levels									
138		-55.4	134	-54.7	128	-56.9	100	-59.1	147
116		-55.4	100	-55.2	113	-60.0	91	-59.1	-59.3
100		-57.0			104	-56.3	86	-56.2	-56.8
84		-54.4			92	-57.8	75	-59.3	-58.7
65		-55.5			83	-54.1	71	-54.2	-59.0
54		-52.4			76	-57.7	59	-57.4	-55.8
					73	-56.3	54	-53.0	-57.0
					65	-58.8			
					55	-53.3			
RAWINSONDE DATA									
Alt	Dir	Speed	Dir	Spec	Dir	Speed	Dir	Speed	Dir
Wind direction - Deg; Speed - Knots; Altitude - mb									
Standard Levels									
150	284	37	229	21	223	51	232	43	202
100	252	19	227	29	234	35	235	23	244
70	258	10	220	8	129	4	216	6	224
50	127	10	213	4	129	4	132	3	098
MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Spec	Dir	Speed	Dir	Speed	Dir
150	250	250	200	200	230	230	230	230	230
100	277	204	214	214	235	235	235	235	235
70	43	62	56	56	45	45	45	45	45

TEST No. 116

SOUNDING DATE 31 Aug 66 TIME 1200Z

## REPORTING STATIONS

STATION	TIME- REPLY	IAS TERRAS	PT. ABOVE SEA	SEA STATE	WIND DIRECTION

## RADIOSONDE DATA

Pressure (h) - mb; Temperature - °C

P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
250	-57.2	-51.7	-56.3	-57.1	-58.9	-55.8									
100	-60.3	-56.1	-58.2	-57.1	-60.5	-57.6									
70	-57.0	-55.6	-58.0	-58.5	-59.1	-55.4									
50	-54.8	-55.4	-55.6	-55.9	-55.8	-53.3									

## Significant Levels

123	-60.5	130	-51.7	139	-58.6	141	-60.1	127	-63.5	146	-56.5				
108	-57.9	143	-54.1	144	-56.5	126	-61.6	121	-60.4	100	-57.6				
100	-60.3	106	-56.9	122	-56.0	100	-57.1	115	-59.9	81	-53.4				
59	-55.3	92	-55.7	108	-60.7	86	-60.5	89	-59.9						
		85	-57.2	100	-58.2			81	-62.5						
		77	-54.5	85	-59.5										
		71	-55.7												
		62	-53.8												
		58	-56.3												

## RAWINSONDE DATA

Wind direction - Deg; Speed - Knots; Altitude - mb

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	311	35	260	14	237	33	282	31	270	31	331	25				
100	292	16	226	14	217	12	274	16	261	6	290	14				
70	224	12	258	14	230	8	115	2	167	4	237	14				
50	076	4	230	4	061	10	113	2	099	17	160	4				

## MAXIMUM WIND

Direction - Deg; Speed - Knots; Altitude - mb

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	300		200		350		350		200		350					
100	341		230		207		293		271		001					
70	80		19		60		82		52		62					

TEST No. 116

SOUNDING DATE 1 SEP 66 TIME 0000Z

REPORTING STATIONS									
OAKLAND	UNION- MICH	LAS VEGAS	FT. ARDELL	SAN MIGUEL	MEXICO				
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C									
P	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels									
120		-52.6		-53.5		-55.0		-57.5	
100		-56.0		-54.4		-56.5		-58.0	
70		-53.3		-54.1		-56.4		-56.2	
50		-53.3		-53.8		-54.1		-54.7	
Significant Levels									
110	-52.5	132	-55.4	139	-57.5	138	-59.0		128
100	-56.0	100	-54.4	122	-57.5	124	-57.5		100
90	-57.5	50	-53.8	118	-53.0	111	-61.4		50
70	-58.5			111	-52.5	100	-58.0		
60	-54.5			94	-58.7				
				90	-56.7				
				63	-56.3				
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels									
150	313	19	236	12	236	29	289	27	326
100	272	12	226	16	240	6	266	21	265
70	220	8	236	12	174	12	246	6	201
50	092	4	146	4	081	10	117	10	060
MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
300		230		250		300		290	
150		011		222		302		311	
50		52		47		45		33	

TEST No. 121  
SOUNDING DATE 21 Aug 66 TIME 1200

REPORTING STATIONS									
PORTLAND	ALBANY	NEW YORK	WASHINGTON	BALTIMORE	MILWAUKEE	CHICAGO	ATLANTA	CHAS. HUTCHINS	CHAS. H. H. H.
RADIOSONDE DATA									
P	P	P	P	P	P	P	P	P	P
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp
Pressure (P) - mb; Temperature - °C									
Standard Levels									
150	-61.0	-62.5	-60.3	-61.0	-65.3	-65.9	-59.9	-55.3	-64.2
100	-60.5	-61.5	-59.5	-59.6	-62.7	-64.2	-59.5	-61.7	-65.4
70	-60.0	-59.4	-57.8	-57.9	-58.5	-59.4	-57.8	-58.1	-58.4
50	-51.6	-54.2	-52.5	-54.1	-53.7	-56.5	-55.7	-56.8	-50.6
Significant Levels									
148	-61.2	-61.6	-64.5	-65.5	-65.3	-67.1	-61.8	-63.7	-65.3
100	-60.5	-61.6	-63.5	-65.1	-67.7	-68.0	-62.7	-60.8	-62.2
71	-60.4	-61.3	-59.6	-60.3	-62.8	-61.6	-59.5	-61.7	-65.4
51	-51.6	-62.2	-59.6	-59.6	-62.1	-62.7	-61.2	-58.5	-58.6
	63	-58.7	-57.6	-57.4	-53.8	-64.7	-59.0	-61.2	
	54	-54.1	-52.9	-54.1	75	-58.9	75	-58.3	
					67	-59.7			
RAWINSOONDE DATA									
Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150	271	60	242	39	227	33	215	56	268
100	227	29	273	21	231	21	238	27	275
70	296	19	286	14	298	4	0	0	290
50	272	8	268	6	298	4	0	0	320
Standard Levels									
150	271	60	242	39	227	33	215	56	268
100	227	29	273	21	231	21	238	27	275
70	296	19	286	14	298	4	0	0	290
50	272	8	268	6	298	4	0	0	320
MAXIMUM WIND									
Direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
150	200	200	200	200	200	200	200	200	200
100	200	200	200	200	200	200	200	200	200
70	200	200	200	200	200	200	200	200	200
50	200	200	200	200	200	200	200	200	200



TEST No. 121 (cont.)

SOUNDING DATE 21 Sep 66 TIME 1200Z

CHARTER		HIGHLIGHT		REPORTING STATIONS																															
RADIOSONDE DATA																		Pressure (P) - mb; Temperature - °C																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp																	
Standard Levels																																			
150		-63.0																																	
100		-65.1																																	
70		-58.6																																	
50		-56.0																																	
Significant Levels																																			
147		-63.8	135																																
126		-67.9	125																																
116		-64.4	98																																
106		-67.6	57																																
100		-65.1																																	
64		-56.9																																	
55		-58.3																																	
RAIN/SONDE DATA																		Wind direction - Deg; Speed - Knots; Altitude - mb																	
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed																	
Standard Levels																																			
150	217	58	213	31																															
100	207	15	237	17																															
70	268	6	268	6																															
50	20	12	264	4																															
MAXIMUM WIND																		Direction - Deg; Speed - Knots; Altitude - mb																	
AR	250		250																																
100	221		207																																
50	93		14																																

## Appendix X

TEST No. 121  
 SOUNDING DATE 22 May 66 TIME 0000Z

REPORTING STATIONS									
PORTLAND	ALBANY	NEW YORK	WASHINGTON	BALTIMORE	WILSONS HILL	CHERRYBRO	ATLANTA	CAPE MAY/STARS	CONC. NEXT PAGE
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C									
P	P	P	P	P	P	P	P	P	P
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp
<b>Standard Levels</b>									
150	-62.3	-61.7	-61.2	-60.0	-60.1	-62.0	-58.5	-58.1	-63.0
100	-62.0	-62.6	-61.1	-61.8	-62.3	-62.1	-60.2	-63.3	-63.7
70	-58.8	-58.8	-58.2	-59.8	-59.2	-58.6	-57.0	-58.8	-58.8
50	-55.8	-55.8	-55.5	-57.1	-56.2	-55.1	-55.8	-57.1	-57.2
<b>Significant Levels</b>									
139	-62.9	-61.9	-61.2	-60.0	-60.5	-63.7	-61.2	-62.7	-63.1
119	-67.4	-67.0	-61.3	-60.8	-67.3	-64.0	-61.4	-60.1	-67.9
115	-63.3	-61.6	-61.0	-62.0	-62.3	-62.1	-60.2	-63.3	-66.8
100	-62.6	-61.1	-61.2	-58.8	-61.0	-62.1	-60.2	-63.3	-66.8
86	-59.0	-61.0	-61.1	-61.8	-61.0	-62.1	-60.2	-63.3	-66.8
77	-59.7	-61.0	-61.1	-61.8	-61.0	-62.1	-60.2	-63.3	-66.8
63	-59.9	-61.0	-61.1	-61.8	-61.0	-62.1	-60.2	-63.3	-66.8
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
<b>Standard Levels</b>									
150	246	54	237	64	229	98	228	52	242
100	262	27	250	23	254	25	243	27	263
70	274	12	277	16	277	16	270	18	275
50	286	8	292	4	282	4	277	10	247
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
175	200	250	250	175	250	300	300	200	200
239	224	227	227	236	213	235	243	231	231
66	70	76	76	64	105	65	70	39	39

TEST No. 121 (CONT.)SOUNDING DATE 22 Jan 66 TIME 0000Z

REPORTING STATIONS														
OBSERVATION		POSITION												
RADIOSONDE DATA														
Pressure (p) - mb; Temperature - °C														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-65.9		-51.6										
100		-65.8		-59.9										
70		-61.8		-57.2										
50		-58.0		-57.2										
Significant Levels														
100		-65.8	135	-58.6										
			115	-56.9										
			95	-50.7										
			77	-57.2										
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
150	235	72	228	25										
100	233	31	243	12										
70	225	10	246	12										
50	240	8	257	10										
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - mb														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
200			300											
250			201											
300			101											

TEST No. 122

SOUNDING DATE 26 Jan 66 TIME 1200Z

320

REPORTING STATIONS																				
PORTLAND		BARTON		ALBANY		ROCHESTER		SARASOTA		DAVOS		FITCHBURGH		HARTFORD		NEW YORK				
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C																				
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
<b>Standard Levels</b>																				
190	-51.8	-55.0	-52.8	-53.1	-63.0	-62.9	-58.0	-61.8	-60.5	-55.6										
100	-51.3	-55.7	-50.9	-54.5	-61.2	-59.7	-57.5	-60.1	-60.8	-55.9										
70	-51.0	-54.5	-52.4	-57.7	-57.9	-57.9	-56.3	-57.8	-55.0	-51.5										
50	-49.3	-52.2	-49.2	-55.3	-54.5	-53.7	-53.2	-52.2	-52.9	-51.3										
<b>Significant Levels</b>																				
190	-51.8	145	-54.1	132	-56.4	100	-54.5	126	-63.9	140	-63.9	130	-57.7	138	-63.8	118	-59.5	109	-56.8	
118	-53.2	124	-54.6	113	-52.4			100	-61.2	125	-59.5	123	-60.3	126	-62.2	100	-61.8	100	-55.9	
110	-50.7	115	-57.1	107	-50.9			50	-54.5	110	-60.6	100	-57.5	118	-64.1	95	-61.3	70	-51.5	
100	-50.3	110	-55.9	77	-55.3					100	-59.7	77	-57.3	108	-60.2	67	-54.1	58	-53.5	
93	-49.9	103	-57.5	62	-48.3					69	-57.8			94	-60.0					
88	-51.8	100	-55.7	53	-53.3									80	-61.2					
77	-49.3	95	-56.2											59	-53.2					
64	-52.6	81	-51.0																	
61	-50.7	61	-57.6																	
55	-52.0	57	-51.0																	
50	-49.3	53	-52.5																	
<b>RAWINSOON DATA</b> Wind direction - Deg; Speed - Knts; Altitude - mb																				
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed		
<b>Standard Levels</b>																				
190	267	60	268	82	263	62	264	60	268	74	291	82	293	73	288	70	282	74	273	66
100	258	41	261	51	262	39	261	41	293	51	292	39	285	13	284	37	276	52	271	56
70	269	16	259	27	271	39	270	27	291	16	284	14	271	11	275	23	258	23	266	33
50	252	21	298	25	200	16	248	19	295	10	284	23	275	21	266	16	253	10	261	14
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knts; Altitude - mb																				
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
190	290		370		290		290		200		290		290		200		175		200	
100	275		274		275		285		280		288		283		284		281		273	
70	70		90		85		74		82		97		93		89		97		97	

TEST No. 123

SOUNDING DATE 27 Sep 66 TIME 1200Z

REPORTING STATIONS															
PORTLAND		BARTON		ALBANY		BUFFALO		FITCHBURGH		KEENE		WATERBURY		NEW YORK	
RADIOSONDE DATA															
Pressure (P) - mb; Temperature - °C															
P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T
Standard Levels															
190	-56.7	-58.4	-58.1	-56.9	-57.1	-56.6	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2
100	-56.0	-58.8	-57.5	-57.5	-56.7	-56.1	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0
70	-50.1	-52.8	-52.9	-52.2	-51.7	-51.2	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0
50	-50.1	-50.6	-50.9	-51.2	-51.8	-52.0	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6
Significant Levels															
190	-56.7	-57.7	-58.4	-58.1	-56.9	-57.1	-56.6	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2	-56.2
100	-56.0	-58.8	-57.5	-57.5	-56.7	-56.1	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0
70	-51.0	-52.8	-52.9	-52.2	-51.7	-51.2	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0	-51.0
50	-50.1	-50.6	-50.9	-51.2	-51.8	-52.0	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6	-52.6
RAWINSONDE DATA															
Wind direction - Deg; Speed - mph; Altitude - m															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels															
190	276	62	276	70	276	62	276	62	276	62	276	62	276	62	276
100	272	61	272	62	272	62	272	62	272	62	272	62	272	62	272
70	276	16	276	27	276	21	276	23	276	23	276	23	276	23	276
50	276	23	276	16	276	21	276	16	276	16	276	16	276	16	276
MAXIMUM WIND															
Direction - Deg; Speed - mph; Altitude - m															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
190	276	62	276	70	276	62	276	62	276	62	276	62	276	62	276
100	272	61	272	62	272	62	272	62	272	62	272	62	272	62	272
70	276	16	276	27	276	21	276	23	276	23	276	23	276	23	276
50	276	23	276	16	276	21	276	16	276	16	276	16	276	16	276

## REPORTING STATIONS

FORECAST

NAVY/NAVY

ALBANY

BUFFALO

FREDERICK

HARTFORD

SALZBURG FIELD

WASHINGTON

NEW YORK

WASHINGTON (CONT.)

RADIOSONDE DATA

Pressure (h) - mb; Temperature - °C

P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels																				
150		-56.7		-59.6		-58.7		-57.1		-61.0		-63.3		-63.5		-63.8		-59.9		
100		-58.0		-62.0		-59.0		-56.9		-61.7		-63.0		-65.2		-60.4		-60.4		
70		-54.6		-58.2		-56.4		-54.0		-59.8		-61.6		-59.9		-57.7		-57.7		
50		-53.5		-54.5		-54.0		-53.8		-53.9		-53.9		-53.7		-53.7		-53.7		
Significant Levels																				
	137	-58.1	129	-63.5	130	-59.5	133	-59.4	136	-63.4	148	-63.4	114	-68.7	143	-64.9	132	-63.0	58	-59.1
	119	-56.0	105	-60.6	105	-57.3	100	-56.9	113	-60.9	140	-61.9	80	-59.5	139	-64.9	100	-60.4	51	-53.9
	100	-58.0	98	-62.6	95	-60.7	80	-57.6	105	-62.6	127	-66.2	73	-60.6			87	-57.5		
	80	-53.7	86	-58.0	81	-54.0	75	-53.3	100	-61.7	107	-65.0					76	-59.5		
	74	-56.3	77	-59.2	67	-57.1	59	-55.5	71	-55.4	105	-62.6					61	-54.8		
	68	-53.7			58	-53.0			65	-57.2	94	-63.6								
					50	-54.0			54	-53.4	80	-60.9								
											68	-61.7								
											65	-57.6								
(Cont.)																				
RAWINSOON DATA																				
Wind direction - Deg; Speed - Knots; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	255	78	272	74	266	72	265	72	269	91	263	99	268	76	267	87	267	97		
100	266	32	268	51	262	54	270	94	272	66	265	43	274	41		272	60			
70	253	33	264	33	246	21	274	23	269	19	290	29	267	16		277	31			
50	274	19	257	55	253	27	259	18	252	23	280	6	267	18		252	21			
Standard Levels																				
MAXIMUM WIND																				
Direction - Deg; Speed - Knots; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
250		250		290		290		250		250		150		175		200				
256		260		279		268		274		263		266		270		262				
101		95		97		85		107		99		76		93		103				

TEST No. 124  
SOUNDING DATE 28 Sep 66 TIME 1200Z

REPORTING STATIONS																		
PORTLAND	BALTIMORE	ALBANY	BUFFALO	PITTSBURGH	ELIZ	FLORIDA	WHEELING	ATLANTA	CHICAGO	NEW YORK								
RADIOSONDE DATA											Pressure (P) - mb; Temperature - °C							
P	P	P	P	P	P	P	P	P	P	P	P	P	P					
Standard Levels																		
150	-57.0	-59.2	-56.5	-58.0	-57.3	-58.7	-62.5	-64.9										
100	-53.9	-56.3	-54.6	-57.4	-55.7	-59.1	-63.7	-68.0										
70	-51.5	-55.0	-53.1	-56.9	-53.3	-58.4	-60.9	-63.6										
50	-51.1	-52.9	-52.1	-51.6	-53.4	-56.1	-55.2	-55.3										
Significant Levels																		
138	-56.5	124	-62.5	136	-56.5	134	-56.5	150	-57.0	122	-57.0	120	-59.8	112	-63.5	112	-70.2	
116	-58.8	100	-60.3	114	-60.0	100	-57.4	115	-61.2	113	-54.6	111	-62.4	110	-66.9	100	-68.0	
100	-53.9	68	-54.5	100	-54.6	95	-52.3	112	-57.2	100	-57.7	100	-59.1	103	-63.7	85	-68.3	
75	-57.5			72	-56.1			100	-52.9	83	-57.4	70	-58.4	82	-63.7			
71	-53.6			70	-53.1			93	-57.0	79	-54.4	66	-54.8					
				58	-53.8			83	-60.4	58	-51.7	60	-57.0					
								73	-56.8									
								57	-57.2									
RAWINSOONDE DATA											Wind direction - Deg; Speed - Knts; Altitude - mb							
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed		
Standard Levels																		
150			271	68			264	95	267	91	267	95	262	98	240	66	248	68
100			257	74			265	96	262	89	270	33	265	41	261	35	263	39
70			267	25	267	29	262	27	265	25	261	23	279	19	261	14	292	25
50			260	16	295	23	262	23	263	12	261	23	273	16	312	10	290	10
MAXIMUM WIND																		
Direction - Deg; Speed - Knts; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed		
150			175				200		175		190		190		150		200	
100			275				260		295		267		262		240		241	
70			111				109		109		95		98		66		93	

### RADIOSONDE DATA

[illegible][illegible][illegible][illegible]

190	270	94	860	66	259	74	264	89	267	85	261	93
100	260	35	263	39	262	52	262	60	267	62	274	39
70	268	21	274	25	275	25	263	27	267	35	274	21
50	262	19	262	18	268	18	265	21	267	19	270	21

[illegible]



TEST No. 124  
SOUNDING DATE 29 Sep 66 TIME 0000Z

REPORTING STATIONS																	
PORTLAND	BALTIMORE	ALBANY	BUFFALO	PITTSBURGH	ELIZ	PHOENIA	WASHVILLE	ATLANTA	COMB. NEXT PAGE								
RADIOSONDE DATA																	
P	P	P	P	P	P	P	P	P	P								
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp								
Pressure (P) - mb; Temperature - °C																	
Standard Levels																	
150	-60.4	-63.2	-60.6	-55.4	-59.6	-54.6	-60.1	-61.0	-60.2								
100	-57.7	-60.5	-57.5	-57.3	-59.8	-57.5	-62.0	-62.9									
70	-55.4	-56.6	-55.8	-54.0	-58.3	-55.9	-59.9	-62.0									
50	-53.0	-56.0	-54.4	-55.2	-56.7	-54.2	-57.0	-57.6									
Significant Levels																	
100	-57.7	150	-63.2	138	-61.4	122	-59.0	136	-59.2	100	-57.5	148	-60.6	145	-62.0	150	-60.2
		120	-66.2	100	-57.5	100	-57.3	117	-61.6			128	-61.8	136	-60.7		
		108	-60.5	72	-56.8	69	-53.3	100	-59.8			113	-59.9	109	-63.2		
		77	-60.2	66	-53.9			83	-61.0			92	-63.4	88	-62.0		
		72	-56.7	56	-56.0			73	-58.7			55	-56.4	61	-63.5		
														63	-60.8		
														60	-57.6		
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir								
Standard Levels																	
150	275	91	263	95													
100	271	47	257	62													
70	260	33	255	35													
50	261	19	262	29													
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - mb																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir								
200	175																
275	257																
117	120																

## 326

TEST No. 125

SOUNDING DATE 23 Sep 66 TIME 1200Z

## REPORTING STATIONS

PORTLAND		BARTON		ALBANY		PITTSBURGH		BIRMINGHAM		WALLINGFORD		WASHINGTON		NEW YORK		
RADIOSONDE DATA																
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	
Pressure (P) - mb; Temperature - °C																
Standard Levels																
150		-56.0		-62.4		-57.8		-55.7		-60.2		-60.3		-59.2		-59.3
100		-58.1		-60.8		-57.5		-60.4		-63.2		-63.8		-62.4		-60.2
70		-53.2		-57.1		-56.1		-56.9		-58.8		-58.6		-57.7		-56.2
50		-51.9		-53.6		-53.6		-52.6		-54.0		-53.7		-54.7		-53.8
Significant Levels																
107		-58.4	145	-62.6	138	-59.1	134	-58.6	143	-62.2	130	-63.6	132	-62.7	123	-61.5
77		-57.0	132	-61.0	132	-57.4	128	-58.4	136	-61.3	116	-62.7	123	-63.3	100	-60.2
73		-53.4	111	-61.5	116	-58.4	116	-63.3	124	-66.0	100	-63.8	113	-61.7	84	-60.7
			109	-59.2	104	-59.9	100	-60.4	70	-58.8			100	-62.4	74	-59.8
			100	-60.8	102	-57.1	56	-54.8					84	-62.4	61	-57.6
					95	-58.6							78	-58.2	55	-58.3
													64	-57.3		
RAWINSONDE DATA																
Wind direction - Deg; Speed - Knots; Altitude - mb																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	242	87	238	91	243	66	272	47	288	82	297	60	260	56	242	76
100	246	52	248	58	254	52	272	37	268	35	271	45	260	51	247	52
70	245	35	252	25	245	29	264	33	264	21	260	31	260	31	247	25
50	244	19	250	27	252	25	271	21	265	16	253	16	275	14	251	14
Standard Levels																
MAXIMUM WIND																
Direction - Deg; Speed - Knots; Altitude - mb																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
200		175		280		200		290		290		290		290		200
237		235		237		279		282		230		230		239		238
57		111		87		62		64		103		84		84		92

TEST No. 126

SOUNDING DATE 30 May 66 TIME 1200Z

## REPORTING STATIONS

PORTLAND		BARTLETT		ALBUQUERQUE		PITTSBURGH		HAWAIIAN ISLANDS		WASHINGTON		HONOLULU (CONT.)	
RADIOSONDE DATA													
P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C													
Standard Levels													
150	-51.5	-66.3	-48.7	-56.5	-61.3	-41.9	-58.9	-56.7					
100	-55.9	-60.2	-53.3	-60.6	-61.6	-62.3	-60.8	-58.3					
70	-54.9	-55.4	-54.8	-58.4	-57.6	-57.0	-56.0	-56.2					
50	-51.9	-54.9	-55.3	-53.1	-51.5	-52.2	-52.1	-52.8					
Significant Levels													
137	-55.1	142	-56.6	150	-48.7	112	-61.1	31	-63.5	140	-64.2	127	-61.5
138	-53.6	123	-62.9	119	-56.8	105	-59.3	100	-61.6	109	-65.1	114	-65.7
115	-56.1	109	-59.4	106	-57.9	95	-62.1	56	-55.2	100	-62.3	105	-62.4
115	-53.5	100	-60.2	100	-53.3	78	-54.8	51	-51.6	70	-55.0	104	-59.6
98	-56.1	83	-60.5	83	-58.9	68	-59.3					100	-60.8
96	-54.0	74	-55.5	62	-51.9	54	-49.5					86	-64.6
54	-51.5	51	-55.2	52	-56.8	51	-53.6					85	-62.5
												80	-56.2
												69	-56.0
												(Cont.)	
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - m													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150	218	72	242	74			260	78	251	85	264	85	
100	230	49	240	58			261	52	251	61	265	68	
70	234	33	235	37			264	23	244	29	260	41	
50	207	16	241	27			249	25	227	23	259	8	
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - m													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
250		300				350		200		350			
245		258				262		260		264			
115		117				91		91		107			

TEST No. 130

SOUNDING DATE 18 Oct 66 TIME 1200Z

REPORTING STATIONS																				
PORTLAND		BARTON		ALBANY		BUFFALO		FLINT		DAYTON		PITTSBURGH		HAMILTON		WASHINGTON		NEW YORK		
RADIOSONDE DATA																				
Pressure (p) - mb; Temperature - °C																				
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels																				
150		-55.3		-58.6		-59.5		-61.9		-61.2		-62.8		-59.3		-61.8		-62.1		-62.8
100		-56.3		-59.9		-59.0		-58.7		-56.9		-64.1		-64.1		-65.5		-60.8		-60.8
70		-58.4		-60.1		-60.5		-58.6		-57.4		-60.6		-60.2		-59.5		-61.1		-61.1
50		-55.0		-56.4		-54.5		-55.8		-53.4		-56.1		-56.4		-55.1		-55.4		-55.4
Significant Levels																				
137		-58.2	122	-61.3	130	-53.5	121	-57.8	130	-61.2	123	-63.2	117	-65.4		125	-68.4	121	-58.9	
116		-58.9	112	-57.0	118	-62.1	100	-50.7	146	-58.6	118	-61.5	100	-64.1		118	-67.5	109	-62.0	
100		-56.3	89	-62.7	116	-59.5	69	-53.6	125	-57.5	100	-64.4	50	-56.4		113	-64.1	100	-60.8	
90		-58.5			86	-58.5			119	-59.4	65	-63.7				100	-65.5	94	-59.6	
78		-55.1			70	-60.5			100	-56.9	52	-55.5				73	-61.0	86	-61.3	
68		-59.3			58	-56.0			84	-59.4						65	-56.8	81	-59.9	
57		-55.1			53	-57.2			80	-56.1						55	-58.3	75	-62.9	
					51	-54.5			64	-58.2						51	-55.3			
RAWINSONDE DATA																				
Wind direction - Deg; Speed - Knts; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																				
150	278	60	286	91	278	91	278	78	253	82	249	107	276	62		267	74	276	66	
100	276	38	274	49	283	56	262	56	277	39	244	49	261	51		270	35	284	47	
70	277	19	271	21	274	19	268	25	253	29	271	19	260	14		269	14	281	30	
50	291	15	271	12	264	14	262	43	248	27	247	14	262	16		282	8	282	10	
MAXIMUM WIND																				
Direction - Deg; Speed - Knts; Altitude - mb																				
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
250		290		290		290	200		200		200		175			200		200		
299		293		286		286	231		233		233		266			260		294		
122		113		120		120	132		117		113		113			111		105		

TEST No. 130

SOUNDING DATE 19 Oct 66 TIME 0000Z

## REPORTING STATIONS

PORTLAND	BARTON	ALBANY	BUFFALO	ELINE	DAYTON	PITTSBURGH	INDIANAPOLIS	WASHINGTON	NEW YORK
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## RADIOSONDE DATA

Pressure (P) - mb; Temperature - °C

P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
190	-62.6	-63.7	-63.5	-60.0	-57.4	-58.3	-61.9	-62.1	-61.4	-61.8	-61.1	-61.1	-61.1	-61.1	-61.1	-61.1	-61.1	-61.1
100	-62.1	-63.5	-61.8	-60.0	-57.8	-60.0	-63.2	-63.9	-67.6	-67.6	-66.1	-66.1	-66.1	-66.1	-66.1	-66.1	-66.1	-66.1
70	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0
50	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0	-62.0

## Significant Levels

182	-63.7	130	-66.0	190	-63.5	136	-58.7	116	-58.0	128	-61.0	107	-64.7	138	-63.2	144	-63.5	144	-63.5
111	-60.8	119	-62.1	123	-63.6			112	-56.0	100	-60.0	100	-63.2	114	-62.5	108	-70.0	136	-64.6
101	-63.0	109	-64.8	115	-60.9			93	-58.9	99	-54.8	80	-62.5	104	-65.5	90	-64.2	118	-67.5
98	-60.0	100	-63.5	100	-61.8			75	-54.8	82	-56.9	66	-57.8	98	-66.3	85	-57.9	105	-65.1
85	-63.2	69	-62.6	88	-63.6									95	-63.9			95	-67.1
81	-59.8	98	-58.3	82	-60.1									76	-59.7			88	-63.0
71	-59.6													60	-55.7				

## RAWINSONDE DATA

Wind direction - Deg; Speed - Knots; Altitude - mb

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
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## Standard Levels

150	272	68	274	76	263	80		228	66	236	91	241	95		260	80	260	80
100	264	55	265	60	240	27		230	45	240	32	249	37		249	36	258	33
70			262	14				232	33	238	23	231	41		255	39	261	6
50			262	21				249	25	238	16	235	14		0	0	261	6

## MAXIMUM WIND

Direction - Deg; Speed - Knots; Altitude - mb

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	200		175		300		200		200		200		250		200		200	
100	267		276		251		227		226		231		231		241		258	
70	103		85		115		97		119		124		124		111		109	

TEST No. 131

SOUNDING DATE 20 Oct 66 TIME 1200Z

REPORTING STATIONS																		
PORTLAND		BOSTON		ALBANY		BUFFALO		DAYTON		PITTSBURGH		HUNTSVILLE		WASHINGTON		NEW YORK		
RADIOSONDE DATA																		
Pressure (P) - mb; Temperature - °C																		
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	
Standard Levels																		
190		-59.8		-60.2		-56.3		-50.2		-59.4		-53.9		-55.5		-54.8		-56.9
100		-57.8		-62.5		-57.2		-54.1		-59.4		-55.5		-57.2		-56.7		-58.0
70		-54.4		-56.3		-52.9		-52.4		-54.8		-54.6		-56.7		-53.9		-53.6
50		-54.0		-55.5		-53.4		-53.1		-53.9		-52.5		-54.1		-55.6		-53.5
Significant Levels																		
140	-60.5	105	-64.8	132	-57.1	100	-54.1	150	-59.4	100	-55.5	149	-55.4	150	-54.8	150	-52.3	
108	-59.6	98	-61.5	119	-53.1	86	-51.9	142	-56.9	96	-56.5	137	-59.9	142	-54.3	100	-58.0	
106	-57.8	83	-62.8	101	-57.5			128	-59.5	50	-52.5	139	-60.8	131	-53.8	94	-59.7	
78	-57.9	77	-56.4	78	-52.8			100	-59.4			107	-57.0	127	-59.7	87	-55.5	
70	-54.4							91	-55.5			103	-58.0	96	-54.6	80	-58.9	
64	-56.6											96	-56.2	82	-59.0	71	-53.2	
51	-53.9											83	-57.7	74	-53.4	63	-56.2	
												78	-53.5	55	-55.9	56	-53.0	
												71	-56.8					
RAWINS ONDE DATA																		
Wind direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	
Standard Levels																		
190																		
100																		
70																		
50																		
MAXIMUM WIND																		
Direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	
190																		
100																		
70																		
50																		

# Appendix X

TEST No. 131

SOUNDING DATE 21 Oct 66 TIME 0800Z

## REPORTING STATIONS

PORTLAND	HAVERHILL	ALBANY	BUFFALO	DAYTON	PITTSBURGH	HARTFORD	WASHINGTON	NEW YORK
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## RADIOSONDE DATA

Pressure (P) - mb; Temperature - °C									
P	T	P	T	P	T	P	T	P	T
190	-49.2	-52.7	-51.8	-58.1	-64.1	-65.0	-64.2	-63.8	-53.3
100	-53.8	-57.4	-54.5	-56.0	-61.5	-60.9	-63.6	-61.5	-57.4
70	-55.8	-56.2	-53.5	-52.1	-55.9	-53.8	-57.3	-57.7	-55.4
50	-54.1	-55.0	-56.8	-55.9	-54.2	-56.0	-54.0	-53.9	-53.0

### Standard Levels

### Significant Levels

119	-54.3	123	-56.6	125	-54.7	140	-57.0	110	-63.4	112	-60.9	141	-65.3	138	-61.8	126	-59.3
115	-52.6	109	-54.2	120	-53.9	126	-59.5	100	-61.5	100	-60.9	130	-63.4	123	-61.8	118	-59.9
106	-55.0	97	-58.5	110	-57.5	100	-56.0	64	-54.5	68	-53.2	100	-63.6	113	-59.0	114	-57.6
97	-53.2	92	-57.3	100	-54.5	87	-56.7			55	-57.5	72	-56.4	100	-61.5	112	-56.9
89	-55.9	86	-59.7	92	-55.4	78	-55.5					66	-58.5	70	-57.0	100	-57.4
66	-53.6	82	-56.8	88	-51.5	72	-52.0					60	-54.2	71	-58.5	97	-58.5
60	-56.1			50	-56.8	55	-54.3							66	-58.9	90	-54.3
52	-53.8					51	-56.1							57	-57.2	70	-57.4
														51	-53.8	62	-54.3

## RAWINSONDE DATA

Wind direction - Deg; Speed - Knts; Altitude - mb									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir

### Standard Levels

150	242	58	245	68	271	68	266	48	270	56	258	58	260	82	283	66
100	223	33	240	49	237	34	272	43	273	39	268	47	265	51	260	33
70	283	6	235	27	236	21	295	25	252	23	253	18	259	25	240	8
50	275	4	249	14	234	14	225	18	241	21	250	12	250	4	286	18

### MAXIMUM WIND

Direction - Deg; Speed - Knts; Altitude - mb									
Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed	Alt
150	250	125	200	290	250	250	290	250	250
100	287	140	232	261	260	277	289	300	300
50	62	70	95	52	70	64	89	97	97



**SOUNDING DATE** 21 Oct 66 **TIME** 1200Z

**SOUNDING DATE** 21 Oct 66

## REPORTING STATIONS

[illegible]

## REPORTING STATIONS

PORTLAND	BARTUCKET	ALBANY	BUFFALO	DAYTON	WASHINGTON	NEW YORK	HARTFORD	PITTSBURGH										
RADIOSONDE DATA																		
Pressure (P) - mb; Temperature - °C																		
P	P	P	P	P	P	P	P	P										
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp										
Standard Levels																		
150	-55.2	-59.1	-55.5	-54.0	-56.4	-60.5	-58.5	-55.7										
100	-59.3	-62.9	-57.1	-54.0	-58.0	-61.3	-60.2	-57.1										
70	-55.5	-58.2	-57.6	-54.3	-57.2	-59.5	-58.5	-55.5										
50	-55.3	-57.5	-54.5	-53.1	-53.3	-56.6	-55.7	-53.3										
Significant Levels																		
110	-56.9	141	-59.7	140	-55.6	146	-54.5	133	-57.9	142	-61.5	145	-61.4	150	-58.5	133	-58.4	
100	-59.3	122	-58.9	119	-56.9	100	-54.0	101	-57.0	117	-63.2	124	-62.8	138	-60.6	106	-56.3	
83	-60.1	111	-62.3	110	-59.5	83	-58.8	89	-59.8	100	-61.3	112	-61.3	129	-58.7	79	-60.7	
72	-54.8	100	-62.9	100	-57.1	76	-54.5			92	-63.0	109	-58.3	116	-62.7	74	-58.1	
67	-56.7	57	-55.6	76	-59.0					83	-60.1	88	-61.4	100	-60.2	67	-58.8	
63	-54.1	50	-57.5	56	-54.3					72	-60.3	79	-56.2	75	-61.7	56	-51.3	
										65	-57.0	70	-59.2					
RAWINSONDE DATA																		
Wind direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
150	252	78	252	97	248	95	245	66	249	70	250	70	248	86	245	78	250	91
100	242	31	244	43	238	49	245	56	262	32	247	50	247	56	261	39	255	47
70	249	18	244	14	241	19	244	10	264	16	227	18	252	29		250	21	
50	303	6	255	14	247	2	236	8	216	6	211	10	167	6		250	14	
MAXIMUM WIND																		
Direction - Deg; Speed - Knots; Altitude - mb																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
250		150		175		250		175		250		200		250		250		
241		252		243		244		247		247		251		246		246		
137		97		103		89		95		95		99		111		111		

**SOUNDING DATE** 25 Oct 66 **TIME** 1200Z

## RADIOSONDE DATA

REPORTING STATIONS

PORTLAND	BARTOCKE	ALBANY	BUFFALO	PITTSBURGH	HUNTINGTON	WASHINGTON	NEW YORK
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RADIOSONDE DATA															
Pressure (P) - mb; Temperature - °C															
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels															
150		-56.1	-79.1		-55.0	-52.8		-54.9		-56.0		-56.6		-57.8	
100		-56.7	-61.3		-56.0	-56.2		-57.0		-57.6		-59.8		-60.1	
70		-53.5	-57.6		-54.5	-55.4		-56.4		-58.3		-59.2		-58.7	
50		-53.6	-55.9		-55.1	-53.6		-55.2		-54.3		-55.4		-54.5	
Significant Levels															
118	-56.2	142	-61.0	119	-58.4	125	-54.7	123	-58.3	130	-53.4	148	-56.7	134	-60.2
130	-60.2	130	-60.7	100	-56.0	122	-52.9	106	-59.0	120	-57.5	119	-61.8	121	-61.7
104	-54.8	119	-63.9	88	-59.2	120	-53.4	103	-57.1	106	-60.7	100	-59.8	100	-60.1
100	-56.7	100	-61.3	76	-54.1	MINDA		58	-56.0	100	-57.5	88	-61.7	72	-60.1
90	-58.4	61	-56.3	66	-55.5	104	-56.6			89	-60.5			65	-58.6
89	-56.3			60	-51.3	85	-54.5			64	-57.6				
76	-57.0			51	-55.2	75	-57.6			57	-54.6				
67	-51.8					60	-54.1								
51	-55.7														
50	-53.6														
RAWINSONDE DATA															
Wind direction - Deg; Speed - Knots; Altitude - mb															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Speed
Standard Levels															
150	246	60	244	82	287	80	249	47	252	56	248	58	249	80	248 85
100	250	54	240	49	255	49	258	10	255	41	256	23	242	58	249 39
70	250	25	253	23	250	27	264	23	258	18	256	12	265	8	247 29
50	250	12	264	14	267	14	264	18	255	6	257	6	302	12	256 18
MAXIMUM WIND															
Direction - Deg; Speed - Knots; Altitude - mb															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Speed
300	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
177	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87

TEST No. 135

SOUNDING DATE 26 Oct 66 TIME 1300Z

## REPORTING STATIONS

PORTLAND	MAUIKAT	ALBANY	PATERBORGE	HELMINGHAM	ADRIENS	CHERKESSKO	CHARLESTON	DATE BUTTERAS
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## RADIOSONDE DATA

Pressure (P) - mb; Temperature - °C

P P Temp P Temp P Temp P Temp P Temp P Temp P Temp P Temp P Temp

Standard Levels

150 -55.8 -57.0 -56.4 -57.9 -58.9 -64.5

100 -57.6 -60.0 -61.4 -61.0 -60.0 -64.7

70 -55.4 -58.4 -59.9 -58.7 -59.9 -62.5

50 -55.6 -56.5 -54.9 -57.5 -56.8 -61.0

Significant Levels

150 -55.8 134 -56.5 121 -57.4 109 -61.9 125 -62.0 141 -65.6

148 -54.8 107 -58.5 121 -57.7 110 -61.4 131 -58.3 100 -61.0 104 -59.1 100 -64.7

100 -57.6 87 -59.6 94 -60.7 60 -59.5 114 -61.5 77 -63.7 83 -63.1 91 -66.8

71 -55.3 67 -57.0 67 -57.0 104 -60.6 51 -56.9 62 -57.4 59 -59.5

62 -57.5 65 -58.8 65 -58.8 31 -59.0 63 -58.5

57 -58.8 54 -55.2

54 -55.2

54 -55.2

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## RAWINSONDE DATA

Wind direction - Deg; Speed - Knots; Altitude - mb

Alt Dir Speed Dir Speed Dir Speed Dir Speed Dir Speed Dir Speed Dir Speed

Standard Levels

150 268 41 252 56 261 33 290 16 315 12 260 23 244 43 241 62

100 277 25 261 35 261 19 313 14 255 6 270 16 266 23 250 31

70 282 23 269 23 302 16 284 12 296 12 284 16 286 16 263 6

50 272 8 279 12 265 10 338 6 290 6 2 340 6 40 10

Maximum Wind

Direction - Deg; Speed - Knots; Altitude - mb

Alt Dir Speed Dir Speed Dir Speed Dir Speed Dir Speed Dir Speed

150 280 300 290 350 250 250 250 250 250 250 250 250 250 250

100 284 241 291 286 286 286 286 286 286 286 286 286 286 286

70 284 254 291 286 286 286 286 286 286 286 286 286 286 286

50 284 254 291 286 286 286 286 286 286 286 286 286 286 286

54 284 254 291 286 286 286 286 286 286 286 286 286 286 286

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TEST No. 135 (CONT.)SOUNDING DATE 26 Oct 66 TIME 1200Z

REPORTING STATIONS															
WALLACE ISLE				WASHINGTON				NEW YORK							
RADIOSONDE DATA															
P	P	F	Temp	F	Temp	P	Temp	F	Temp	P	Temp	F	Temp		
Pressure (P) - mb; Temperature - °C															
Standard Levels															
150			-58.5		-57.5		-56.1								
100					-61.2		-60.2								
70					-60.7		-58.2								
50					-58.1		-56.6								
Significant Levels															
134			-60.2	100	-61.2	100	-60.2								
				80	-61.8										
RAWINSONDE DATA															
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir		
Wind direction - Deg; Speed - Knts; Altitude - mb															
Standard Levels															
150	296	52	260	35	299	47									
100			286	21	263	23									
70			289	16	266	18									
50			310	2	284	6									
MAXIMUM WIND															
Direction - Deg; Speed - Knts; Altitude - mb															
Alt	250		250		300										
Dir	231		232		255										
Speed	105		66		109										

## REPORTING STATIONS

[illegible]

TEST No. 137SOUNDING DATE 28 Oct 66 TIME 1200Z

REPORTING STATIONS													
FORECAST		BAROMETRIC		CURRENT									
RADIOSONDE DATA													
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels													
150		-59.9		-50.9									
100		-61.7		-53.9									
70		-59.6		-51.6									
50		-57.9		-48.4									
Significant Levels													
136	-61.2	159	-60.9	144	-55.2								
122	-59.7	101	-64.1	118	-60.1								
107	-64.2	72	-59.7	100	-55.4								
102	-61.8			85	-53.8								
53	-58.0			80	-57.1								
				59	-55.4								
				53	-58.9								
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knts; Altitude - mb													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
150	263	49	296	31	272	60							
100	264	27	270	27	273	37							
70	238	12	254	15	278	16							
50	346	6	261	8	255	10							
MAXIMUM WIND													
Direction - Deg; Speed - Knts; Altitude - mb													
Alt	175		125		200								
Dir	257		253		267								
Speed	58		35		93								

TEST No. 130SOUNDING DATE 4 May 66 TIME 1200Z

## REPORTING STATIONS

SAS JUAN		ARIZONA		BALE MANTIN		COUNTELOUSE																			
RADIOSONDE DATA														Pressure (P) - mb; Temperature - °C											
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp			
Standard Levels																									
150		-78.3		-78.5		-78.2		NONE																	
100		-74.9		-76.8		-78.5																			
70		-70.8				-73.0																			
50		-61.5				-58.0																			
Significant Levels																									
124		-77.0		NONE		NONE		138		-73.0															
104		-74.0		ABOVE		ABOVE		106		-76.0															
80		-71.0		300 mb		435 mb																			
72		-71.0																							
67		-71.0																							
RAINFALL DATA																									
Wind direction - Deg; Speed - Knots; Altitude - K FT																									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir		
Standard Levels																									
45	360	35			360	47	360	56																	
50	010	25			360	23	060	23																	
55																									
60	080	11	320	13	360	10																			
65																									
70	030	7	360	14	340	23																			
MAXIMUM WIND																									
Direction - Deg; Speed - Knots; Altitude - K FT																									
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir		
45					45				44																
50	360	35			360				360																
55					47				58																



TEST No. 141

SOUNDING DATE 7 MAY 66 TIME 1300Z

REPORTING STATIONS											
SAF JUAN		ARTICA		SAN MARTIN		GRANDES		GRAND TIBIK			
RADIOSONDE DATA											
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	Temp
Pressure (P) - mb; Temperature - °C											
Standard Levels											
150		-68.9		-66.4		NONE		-67.5		-67.9	
100		-77.6		-76.7				-76.7		-74.9	
70		-69.6		-70.2				-72.5		-72.0	
50		-58.7		-58.0				-58.0		-60.5	
Significant Levels											
120	-75.0	124	-74.0		128	-73.0		132		136	
93	-75.0	117	-74.0		120	-73.0		124		128	
		105	-75.0		94	-65.0		98		102	
		99	-77.0		85	-76.0		89		93	
		94	-75.0		77	-77.0		81		85	
		79	-75.0		56	-59.0		60		64	
		75	-74.0								
		70	-70.0								
		66	-67.0								
RAWINSONDE DATA											
Wind direction - Deg; Speed - Knts; Altitude - K FT											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
45	250	43	250	49	280	45	290	59			
50	290	41	280	41	270	41	300	46			
55	280	24									
60	290	11	300	4	280	11	310	20			
65											
70	190	6	180	10	160	14	160	4			
MAXIMUM WIND											
Direction - Deg; Speed - Knts; Altitude - K FT											
Alt	35		43		47		24				
45	310		280		280		330				
Speed	46		55		51		67				

TEST NO. 112SOUNDING DATE 8 Nov 66 TIME 1200Z

REPORTING STATIONS												
SAL. JUNE		AMERICA		SAR. MARINES		CARRACOUNS						
RADIOSONDE DATA												
P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C												
Standard Levels												
190		-66.2		-67.3		-67.1		RMSE				
100		-77.3		-75.9		-76.0						
70		-65.6		-66.5		-64.7						
50		-53.7		-56.6		-56.1						
Significant Levels												
		RMSE	146	-69.0	137	-70.0		RMSE				
		ADPVS	138	-70.0	133	-68.0						
		SEA mb	131	-68.0	77	-71.0						
			117	-72.0	72	-65.0						
					52	-56.0						
RAWINSONDE DATA												
Wind direction - Deg; Speed - Knots; Altitude - K Ft												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
45	260	23	290	65				RMSE				
50	280	18	260	51								
55												
60	280	18	280	8								
65												
70	160	11	190	11	240	11						
MAXIMUM WIND												
Alt	47		47									
Speed	290		290		270							
	60		69		61							

TEST NO. 143

SOUNDING DATE 9 Nov 66 TIME 1200Z

REPORTING STATIONS														
SAL TUB		GRAND TUBE		BERGDA		SHIP T <sub>2</sub>								
RADIOSONDE DATA														
Pressure (P) - mb; Temperature - °C														
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-68.0		-67.6		-63.5		-61.7						
110		-75.6		-71.9		-62.8		-66.9						
70				-69.5				-63.2						
50		-57.0						-59.8						
Significant Levels														
149		-69.0												
						None above 1400 mb		135		-61.0				
								116		-67.0				
								78		-65.0				
								74		-61.0				
								70		-63.0				
								58		-54.0				
								50		-60.0				
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knts; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
45	290	64	320	61	330	27								
50	280	52	310	44	300	23								
55	270	34												
60	290	34	310	21										
65														
70	330	28	130	19										
MAXIMUM WIND														
Direction - Deg; Speed - Knts; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
45	143		41		35									
50	290		330		340									
Speed	72		65		44									

## Appendix X

TEST No. 144  
 SOUNDING DATE 10 Nov 66 TIME 12:32

REPORTING STATIONS											
SAI JULIA		ARTIGUA		COUNDECOPE		SAN MARTIN		BARBADOS			
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C											
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Standard Levels											
150				-67.3	NONE		-66.9		-69.2		
100		-73.2		-72.3		-72.6		-86.8			
70								-69.5			
50		-57.7		-57.7				-60.5			
Significant Levels											
137	-71.0	133	-73.0	NONE	141	-69.0	122	-78.0			
106	-74.0	124	-71.0		114	-75.0	92	-83.0			
90	-76.0	117	-72.0		91	-74.0	56	-59.0			
70	-71.0										
56	-59.0										
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - K FT											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
45	280	38	240	101	NONE		230	50			
50	270	43	260	72		NONE ABOVE 39 K	260	52			
55											
60	280	12	270	18			270	19			
65											
70	60	15	70	20			150	6			
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - K FT											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
40		45			39		50				
300		240			240		260				
Speed	53		101		78		52				

TEST No. 541

## REPORTING STATIONS

[illegible]

TEST No. 146

**SOUNDING DATE** 15 Nov 66 **TIME** 1200Z

## REPORTING STATIONS

[illegible]

**SOUNDING DATE** 16 Nov 66 **TIME** 1200Z

## RADIOSONDE DATA

P	P	T	P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
SAN JUAN	SAN JOSE	CORRAL TIEB	KAMUJENA																
RADIOSONDE DATA																			
Pressure (P) - mb; Temperature - °C																			

[illegible][illegible][illegible]

Standard Levels										
45	230	90	100R	240	64	230	47			
50	240	35		260	52	230	42			
55	260	26								
60	280	4		250	1	220	19			
65										
70	210	8		80	5	140	2			

[illegible]

# Appendix X

TEST No. 138  
SOUNDING DATE 17 Nov 66 TIME 1200Z

REPORTING STATIONS													
SAN JUAN		CERRO TUNE		EL ESTERO		EL ESTERO		EL ESTERO		EL ESTERO		EL ESTERO	
PRESSURE (P) - mb; TEMPERATURE - °C													
P	P	P	P	P	P	P	P	P	P	P	P	P	P
RADIOSONDE DATA													
Standard Levels													
Significant Levels													
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - X Ft													
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
45	250	36	260	80	250	48	270	54					
50	270	42	260	59	260	39	260	47					
55	240	23											
60	250	13	290	29	230	21							
65	120	08											
70	240	12	200	03	230	07							
MAXIMUM WIND													
AR	35		44		42		34						
Dir	270		250		250		240						
Speed	46		82		53		109						



**SOUNDING DATE** 27 Nov 68 **TIME** 1200Z

[illegible]

# Appendix X

TEST No. 150  
SOUNDING DATE 22 Nov 66 TIME 1200Z

REPORTING STATIONS													
SAS JUNE		SAS JUNE		ARTICHA		CHAND TUNE		CHAND TUNE					
RADIOSONDE DATA													
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C													
Standard Levels													
150		-67.8		-68.2		-67.8							
100		-76.8		-77.2		-79.2		-76.6					
70		-74.6		-72.3		-69.2		-70.4		-59.1			
50		-62.8		-60.0		-58.5		-62.0		-58.5			
Significant Levels													
		146		-69.0									
		88		-82.0									
		83		-82.0									
RAWINSONDE DATA													
Wind direction - Deg; Speed - Knots; Altitude - I FT													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels													
45	270	60			280	56	260	94					
50	270	42			280	40	270	64					
55	280	32											
60	270	24			290	15	250	19					
65													
70	330	07			10	10	290	05					
MAXIMUM WIND													
Direction - Deg; Speed - Knots; Altitude - I FT													
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
45					44			44					
50					280			260					
55													
60					57			98					
65													
70													

**SOUNDING DATE** 23 July 66 **TIME** 1200Z

[illegible]

**SOUNDING DATE** 24 Nov 66 **TIME** 1200Z

## REPORTING STATIONS

[illegible]

**SOUNDING DATE** 28 May 66 **TIME** 1200Z

## REPORTING STATIONS

[illegible]

# Appendix X

TEST No. 154  
SOUNDING DATE 20 JUL 66 TIME 1200Z

REPORTING STATIONS												
SAS JUNE		SAS MORTIS		ANTICIA		GUSSELOVER		ANTICIA		ANTICIA (CONT.)		
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C												
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels												
150												
100												
70		-72.8				-73.5						
50		-62.6				-61.3						
Significant Levels												
140	-72.0		146	-70.0					6A	-70.0		
110	-76.0		132	-72.0					61	-67.0		
100	-78.0		119	-72.0								
80	-80.0		113	-74.0								
58	-67.0		96	-76.0								
51	-61.0		91	-78.0								
			85	-78.0								
			81	-79.0								
			76	-76.0								
			69	-73.0								
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - I Ft												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
45	300	45			340	53			350	56		
50	300	35			340	33			340	30		
55												
60	360	13	40	10	350	22			360	23		
65												
70	60	06	30	4	360	04			360	6		
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - I Ft												
Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed	
46			45			40						
300			340			360						
52			53			62						

TEST No. 159  
 SOUNDING DATE 4 Jan 67 TIME 0000Z

REPORTING STATIONS																	
EDWARDS		SAY KICOLAS		VANDERBURG		OAKLAND		MIDFORD		WHEELER		LAS VEGAS					
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C																	
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
<b>Standard Levels</b>																	
150			-62.4		-62.4		-61.7		-61.3								
100			-71.0		-67.0		-69.2		-63.5								
70			-66.1				-68.6		-58.9								
50			-59.4		-57.1		-56.5		-54.5								
<b>Significant Levels</b>																	
150		-62.0	139	-62.0	117	-68.0	115	-65.0									
100		-71.0	122	-67.0	100	-69.0	100	-64.0									
			100	-67.0	60	-63.0											
			65	-69.0	50	-57.0											
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - K FT																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Alt
<b>Standard Levels</b>																	
55			310	43	300	41	290	50	280	80							
50			310	31	300	37	290	44	290	61							
55																	
60			320	12	330	15	280	22	290	22							
65							300	12	300	06							
70			120	05	100	04	80	12	40	17							
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - K FT																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Alt
							40		40								
							290		270								
							04		109								





TEST No. 163

SOUNDING DATE 15 Jan 67 TIME 0000Z

REPORTING STATIONS												
OCEAN BAY		ROSLAR		AMBERIDGE		MC GRATH		BRISBOL		KING SALOMON		
RADIOSONDE DATA												
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C												
Standard Levels												
150		-47.9		-47.8		-49.2		-49.8		-47.6		-48.0
100		-46.2		-48.9		-47.7		-48.2		-47.8		-47.8
70				-47.5		-47.1		-48.5		-45.1		-47.5
50				-46.5		-48.8		-48.6		-45.3		-45.3
Significant Levels												
124		-49.0			100	-48.0	106	-46.0	100	-48.0	120	-46.0
114		-46.0			96	-50.0	70	-49.0	65	-45.0	106	-49.0
100		-46.0					62	-45.0	54	-47.0	80	-45.0
										71	-48.0	
										51	-43.0	
RAWINSONDE DATA												
Wind direction - Deg; Speed - Knots; Altitude - K FT												
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
45	230	26	240	25	260	38	260	37	250	33	240	25
50	250	28	250	36	260	41	260	48	250	39	250	34
55	230	24										
60			250	31	270	45	270	53	260	39	260	31
65												
70			260	37	280	55	270	67	270	57	270	35
MAXIMUM WIND												
Direction - Deg; Speed - Knots; Altitude - K FT												
AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
120			106		94				93			
310			310		290				290			
55			97		95				76			

# Appendix X

TEST No. 16

SOUNDING DATE 17 Jan 67 TIME 0000

REPORTING STATIONS														
APPROX	YALUIC	RETEL	MC GRACK	ELING GRACK	ROCK	ST PAUL	CED MAY							
RADIOSONDE DATA														
Pressure (P) - mb; Temperature - °C														
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Standard Levels														
150	-51.9	-52.3	-48.2	-50.2	-50.1	-52.2	-44.0	-47.7						
100	-50.7	-51.1	-48.1	-51.8	-49.6	-47.8	-43.9	-47.9						
70	-51.1		-49.1	-50.1	-47.8		-43.6							
50	-48.0		-47.1	-48.3	-46.3	-48.3	-41.7							
Significant Levels														
100	-51.0			-52.0	142	-49.0								
70	-52.0				127	-52.0								
					121	-50.0								
					108	-53.0								
					100	-50.0								
RAWINSONDE DATA														
Wind direction - Deg; Speed - knots; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
15	260	31	280	52	230	36	240	52	230	38	240	25	190	50
50	260	31	290	50	220	54	240	51	230	35	250	42	200	40
55			290	52										
60	270	43	300	41	240	38	260	56	250	40	260	30	210	44
65														
70	290	62	300	90	260	58	280	60	280	35	280	31	230	34
MAXIMUM WIND														
Direction - Deg; Speed - knots; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
105		95		106		105		97					28	
300		310		280		290		290					190	
Speed	99	175		117		128		64					101	

TEST No. 155  
 SOUNDING DATE 18 June 67 TIME 0000Z

REPORTING STATIONS														
ADDRESS	FAIRWAYS	EC CHART	ENTRANCE	NAME	REMARK	WING SAUNDER								
RADIOSONDE DATA														
P	Z	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C														
Standard Levels														
150		-51.9		-57.4		-49.3		-47.0		-50.5				
100		-51.0		-53.6		-51.3		-46.2		-52.2				
70		-50.0		-52.5		-48.9		-46.2		-43.9				
50		-49.4		-51.5		-46.7		-45.1		-44.4				
Significant Levels														
100		-51.0	141	-56.0	100	-51.0				142	-51.0			
86		-51.0	129	-51.0						124	-48.0			
			110	-56.0						100	-52.0			
			100	-54.0						76	-49.0			
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - K Ft														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
45	230	30	270	30										
50	240	25	270	51										
55														
60	280	35	280	55	270	36					230	24		
65											290	43		
70	290	51	290	71	260	54					260	40	260	23
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - K Ft														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
96			92											
300			310											
71			118											

# Appendix X

TEST No. 166

SOUNDING DATE 26 Jan 67 TIME 0002Z

## REPORTING STATIONS

ANCHORAGE	YARDPAT	VALERIANES	MC GRACE	RENNEL	ICE STATION
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### RADIOSONDE DATA

P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
---	---	------	---	------	---	------	---	------	---	------	---	------	---	------	---	------	---	------

#### Standard Levels

150	-53.4	-51.0	-49.5	-48.0	-46.5	-45.0	-43.5	-42.0	-40.5	-39.0	-37.5	-36.0	-34.5	-33.0	-31.5	-30.0	-28.5	-27.0
100	-51.0	-49.5	-48.0	-46.5	-45.0	-43.5	-42.0	-40.5	-39.0	-37.5	-36.0	-34.5	-33.0	-31.5	-30.0	-28.5	-27.0	-25.5
70	-48.6	-47.3	-46.0	-44.7	-43.4	-42.1	-40.8	-39.5	-38.2	-36.9	-35.6	-34.3	-33.0	-31.7	-30.4	-29.1	-27.8	-26.5
50	-46.3	-45.0	-43.7	-42.4	-41.1	-39.8	-38.5	-37.2	-35.9	-34.6	-33.3	-32.0	-30.7	-29.4	-28.1	-26.8	-25.5	-24.2

#### Significant Levels

100	-51.0	-49.5	-48.0	-46.5	-45.0	-43.5	-42.0	-40.5	-39.0	-37.5	-36.0	-34.5	-33.0	-31.5	-30.0	-28.5	-27.0	-25.5
	-51.0	-49.5	-48.0	-46.5	-45.0	-43.5	-42.0	-40.5	-39.0	-37.5	-36.0	-34.5	-33.0	-31.5	-30.0	-28.5	-27.0	-25.5
	-51.0	-49.5	-48.0	-46.5	-45.0	-43.5	-42.0	-40.5	-39.0	-37.5	-36.0	-34.5	-33.0	-31.5	-30.0	-28.5	-27.0	-25.5
	-51.0	-49.5	-48.0	-46.5	-45.0	-43.5	-42.0	-40.5	-39.0	-37.5	-36.0	-34.5	-33.0	-31.5	-30.0	-28.5	-27.0	-25.5

### RAWINSONDE DATA

AR	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
----	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------

#### Standard Levels

45	300	11	330	21	310	30	270	23	280	17	300	04						
50	310	19	300	15	310	34	290	18	270	12	300	04						
55																		
60	300	17	310	19	310	32	290	21	330	09	300	04						
65																		
70	290	24	290	29	300	43	290	35	290	17	300	15						

#### MAXIMUM WIND

AIR																		
Dir																		
Speed																		

TEST No. 167 SOUNDING DATE 27 Jan 67 TIME 0000Z

## **REPORTING STATIONS**

ANCHORAGE		YAKUTAT		KING SALMON		MC GRATH		VALDEMIKUS		BASTER ISLAND		BARROW					
P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	
Pressure (P) - mb; Temperature - °C																	
RADIOSONDE DATA																	
Standard Levels																	
150		-48.3		-49.1		-50.3		-48.9		-47.0							
100		-48.3		-47.9		-49.8		-48.1		-47.0							
70		-46.7		-47.7		-47.0		-48.6		-50.2							
50		-48.3		-49.1				-48.8		-53.2							
Significant Levels																	
		140		-49.0	100	-50.0	135	-51.0	133	-48.0							
		127		-46.0	61	-46.0	100	-48.0	123	-44.0							
		114		-48.0					112	-47.0							
		57		-48.0					100	-47.0							
RAWINSONDE DATA																	
Wind direction - Deg; Speed - Knots; Altitude - K FT																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
Standard Levels																	
45	300	18	310	24	260	7			300	30							
50	320	12	280	10	290	11			280	26							
55																	
60	290	16	350	19	300	12	290	14	280	30							
65																	
70	260	22	300	20			270	27	280	42							
MAXIMUM WIND																	
Direction - Deg; Speed - Knots; Altitude - K FT																	
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	
105		105		18		99		99									
300		310		20		290		300									
700		74		68		77		82									

# Appendix X

TEST No. 168  
SOUNDING DATE 28 Jan 67 TIME 0000Z

REPORTING STATIONS											
ALBUQUERQUE	FALTIMBERS	MYTZBURG	ROME	SEVING	MC CORMICK						
<b>RADIOSONDE DATA</b> Pressure (P) - mb; Temperature - °C											
P	P	P	P	P	P	P	P	P	P	P	P
Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp	Temp
Standard Levels											
150	-48.0	-46.3	-52.3	-48.8	-51.2	-48.7					
100	-48.2	-51.1	-53.0	-49.8	-49.2	-48.8					
70	-48.5				-47.6	-48.0					
50	-46.9				-46.5	-47.1					
Significant Levels											
119	-50.0				145	-61.0					
100	-48.0										
83	-50.0										
54	-47.0										
<b>RAWINSONDE DATA</b> Wind direction - Deg; Speed - Knots; Altitude - K FT											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
45	360	13	310	23	300	23	300	14	300	08	
50	310	07	310	26	270	23	280	15	330	12	
55											
60	270	13					290	16			
65											
70	290	11					280	29	280	38	
<b>MAXIMUM WIND</b> Direction - Deg; Speed - Knots; Altitude - K FT											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
29		23		90		95		28			
410		360		270		270		360			
74		108		75		62		78			

TEST No. 169

SOUNDING DATE 31 Jan 57 TIME 0000Z

## REPORTING STATIONS

AIRCRAFT		MC CRAFT		FALLBACKS		LANDFALL		WALLFALL		SHIP 'P'	
RADIOSONDE DATA											
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P
Pressure (P) - mb; Temperature - °C											
Standard Levels											
150		-46.3		-47.4		-48.8		-46.2		-47.8	
100		-48.7		-47.7		-50.8		-48.0		-49.6	
70		-48.0		-50.2		-52.0		-49.7		-50.6	
50		-49.8		-49.3		-53.2		-51.2		-52.4	
Significant Levels											
	109	-50.0			100	-51.0				100	-49.0
	89	-47.0									-50.0
	50	-50.0									
RAWINSOONDE DATA											
Wind direction - Deg; Speed - Knots; Altitude - K FT											
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir
Standard Levels											
45	300	28	280	41	290	31	270	22		270	23
50	270	33	280	37	270	43	280	24		260	21
55											
60	280	36	270	48	280	56	280	35		270	26
65											
70	280	46	280	51	280	71	290	38		270	31
MAXIMUM WIND											
Direction - Deg; Speed - Knots; Altitude - K FT											
Alt	105				96		104		19		86
510					300		310		180		270
Speed	93				123		74		66		102

## Appendix X

TEST No. 170

SOUNDING DATE 1 Feb 67 TIME 0000Z

REPORTING STATIONS														
ANCHORAGE	FAIRWAYS	BARON	MYZARIE	NAME	RETEL	MC GRATH								
RADIOSONDE DATA														
Pressure (h) - mb; Temperature - °C														
P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Standard Levels														
150		-46.8		-50.3		-58.9		-54.1		-50.1		-45.8		-46.1
100		-48.6		-51.6		-61.9		-53.0		-49.4		-47.8		-50.6
70		-49.4		-53.4				-52.5		-47.9		-48.2		-50.1
50		-47.8		-50.8		-56.3		-52.1		-46.8		-46.7		-45.3
Significant Levels														
142		-47.0	100	-52.0	150	-59.0	100	-53.0	128	-51.0	142	-45.0	117	-46.0
120		-48.0	73	-54.0	100	-62.0			100	-49.0	100	-48.0	100	-51.0
86		-49.0			50	-57.0			60	-46.0	93	-46.0	62	-50.0
77		-46.0							56	-47.0	73	-50.0	58	-46.0
70		-49.0									65	-45.0		
55		-47.0									54	-48.0		
RAWINSONDE DATA														
Wind direction - Deg; Speed - Knots; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels														
45	270	29	280	47	290	41	290	40	280	33		290	37	
50	250	44	280	49	290	56			280	45		290	42	
55														
60	280	49	290	75	290	92	280	66	280	57		290	58	
65														
70	290	53	290	94	290	122	290	100	280	65		280	70	
MAXIMUM WIND														
Direction - Deg; Speed - Knots; Altitude - K FT														
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
102			104		102		100		102			103		
320			320		310		050		310			310		
74			117		163		136		87			107		



TEST No. 171

SOUNDING DATE 2 Feb 67 TIME 0024Z

REPORTING STATIONS												
ABOARD	KITE SAISON	RETRIEV	MC GRATH	MONZ	KATZELER							
RADIOSONDE DATA												
P	Alt	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
Pressure (P) - mb; Temperature - °C												
Standard Levels												
150	-47.3			-44.4				-51.6				
100	-47.0			-42.0				-48.8				
70	-46.2			-45.4				-47.6				
50	-45.4			-43.8				-42.1				
Significant Levels												
100	-47.0	100	-45.0	133	-45.0			247	-52.0			
76	-48.0	64	-47.0	126	-43.0			100	-49.0			
60	-44.0			112	-45.0			74	-49.0			
				100	-43.0			54	-41.0			
				77	-47.0			50	-42.0			
				54	-41.0							
				51	-44.0							
RAWINSONDE DATA												
Wind direction - Deg; Speed - Knots; Altitude - K Ft												
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels												
45	270	43	260	35	270	36	270	41				
50	280	43	260	34	290	39	280	54				
55												
60	290	56	290	30	290	37	290	63				
65												
70	310	98	290	33	290	39	300	65				
MAXIMUM WIND												
Direction - Deg; Speed - Knots; Altitude - K Ft												
Alt	96											
Dir	340											
Speed	75											

# Appendix X

TEST No. 172  
SOUNDING DATE 5 Feb 67 TIME 0000Z

## REPORTING STATIONS

ANCHORAGE	YAKUTAY	RENTAI	KING SALMON	NEKHEG	HOME	SETERKUR	MC GRATH
-----------	---------	--------	-------------	--------	------	----------	----------

### RADIOSONDE DATA

Pressure (P) - mb; Temperature - °C

P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
---	---	------	---	------	---	------	---	------	---	------	---	------	---	------	---	------

### Standard Levels

150	-50.6	-49.9	-48.0	-46.6	-47.2	-46.0	-48.0	-46.2
100	-48.4	-49.9	-51.3	-48.0	-44.5	-47.9	-45.7	-46.0
70				-45.2				
50				-45.3				

### Significant Levels

				137	-49.0											
				130	-44.0											
				100	-48.0											
				90	-49.0											
				83	-47.0											
				74	-48.0											
				64	-44.0											
				58	-46.0											

### RAWINSORDE DATA

Wind direction - Deg; Speed - Knots; Altitude - K FT

Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
-----	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------	-----	-------

### Standard Levels

45	240	35	270	58	210	23	200	31	210	34		260	37	230	29	
50	250	36	280	37	200	19	240	34	220	40		270	36	260	26	
55																
60							220	15								
65																
70							250	17								

### MAXIMUM WIND

Direction - Deg; Speed - Knots; Altitude - K FT

Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed	Alt	Dir	Speed
30		28				110		35				97					
240		280				270		210				280					
87						64		66				84					

SOUNDING DATE 7 Feb 67 TIME 0000Z

[illegible]



TEST No. 173

SOUNDING DATE 9 Feb 67 TIME 0000Z

## REPORTING STATIONS

ALCERPAGE		MC GRATE		BETHEG		ROYZAKIE		KING SALMON								
RADIOSONDE DATA																
P	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	
Pressure (P) - mb; Temperature - °C																
Standard Levels																
150		-42.6		-43.6		-41.3		-44.9		-42.0						
100		-45.7		-43.2		-43.2		-46.4		-46.4						
70		-47.0		-47.2		-46.3		-45.8		-49.2						
50		-42.8		-45.4		-43.1		-47.5		-44.8						
Significant Levels																
128		-46.0	125	-45.0	115	-42.0	100	-46.0	116	-43.0						
100		-46.0	112	-42.0	104	-44.0	82	-44.0	100	-46.0						
84		-50.0	66	-48.0	100	-43.0	60	-48.0	69	-49.0						
71		-47.0			81	-43.0			55	-44.0						
63		-50.0			74	-47.0										
50		-43.0			55	-42.0										
RAWINSONDE DATA																
Wind direction - Deg; Speed - Knots; Altitude - I Ft																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
Standard Levels																
45	240	47	230	54	220	42	230	38	210	62						
50	240	62	240	49	230	47	240	40	230	45						
55																
60	250	41	240	43	230	37	250	46	230	25						
65	270	45														
70	240	26	260	42	230	28	260	48	240	23						
MAXIMUM WIND																
Direction - Deg; Speed - Knots; Altitude - I Ft																
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
45	50		98		24				45							
50	240		290		210				210							
Speed	62		84		71				66							

**TEST NO. 176**

**SOUNDING DATE** 29 MAR 77 **TIME** 20000

## REPORTING STATIONS

[illegible]

**TEST No. 177**

**SOUNDING DATE** 14 Feb 67 **TIME** 0000Z

[illegible]

# Appendix X

TEST No. 178  
SOUNDING DATE 15 Feb 67 TIME 0000Z

## REPORTING STATIONS

AUXILIARY		KING SALON		BETHEL		PRESSURE (P) - mb; TEMPERATURE - °C												
P	F	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp	P	Temp
<b>RADIOSONDE DATA</b>																		
<b>Standard Levels</b>																		
190		-49.1		-48.5		-55.5												
100		-49.8		-49.7		-50.0												
70		-49.7		-51.7		-50.4												
50		-50.2		-53.0		-53.4												
<b>Significant Levels</b>																		
126		-48.0	122	-51.0														
93		-52.0	113	-47.0														
82		-48.0																
58		-52.0																
<b>RAWINSONDE DATA</b>																		
Wind direction - Deg; Speed - Knots; Altitude - Ft																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
<b>Standard Levels</b>																		
45	290	53			270	53												
50	290	42			260	50												
55																		
60	310	41	260	31	290	45												
65																		
70	290	54	270	50	260	57												
<b>MAXIMUM WIND</b>																		
Alt	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed	Dir	Speed
31		29			31													
290		280			270													
64		130			132													



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Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION
Lockheed-California Company Burbank, California		Unclassified
		2b. GROUP
3. REPORT TITLE		
PROJECT HICAT AN INVESTIGATION OF HIGH ALTITUDE CLEAR AIR TURBULENCE		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report/12 February 1965 to 10 July 1967.		
5. AUTHOR(S) (Last name, first name, initial)		
Crooks, Walter M.; Hoblit, Frederic M.; Prophet, David T., et al		
6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
November 1967	372	23
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S)	
AF33(657)-11143	Lockheed Report 20771	
a. PROJECT NO. 1469	8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c. Task No.	AFFDL-TR-67-123, Vol III	
d. BPS No. 3(6399-651G)		
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11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY
None		AF Flight Dynamics Laboratory Research and Technology Division Air Force Systems Command Wright-Patterson AFB, Ohio
13. ABSTRACT		
<p>This report describes the high altitude clear air turbulence (HICAT) flight investigation with primary emphasis upon the results achieved since 15 February 1965. On this date the program was redirected to utilize a new digital instrumentation system for the measurement of CAT in the wavelength range from about 100 feet to 60,000 feet. The program effort required the measurement of CAT velocity components at altitudes of 45,000 to 70,000 feet in seven geographic areas. Instrumentation carried aboard the HICAT aircraft, an Air Force U-2, consisted of a PCM System, an Inertial Navigation System, aerodynamic and aircraft response sensors including a fixed vane gust probe, oscillograph recorder, and a digital magnetic tape recorder.</p> <p>The program objective is to determine the statistical characteristics of high altitude CAT so as to improve structural design criteria. Overall, 29.2 hours of high altitude CAT were located and recorded in flights covering over 256,000 miles from bases in California, Massachusetts, Alaska, Hawaii, Puerto Rico, New Zealand, and Australia. Actual vertical, lateral, and longitudinal gust velocity time histories have been calculated from the measurements and used to obtain gust velocity power spectra. Derived equivalent gust velocities were also calculated and peak counted. Meteorological factors were considered in categorizing and correlating data. Time histories and power spectra are found in Volume II of this report, while meteorological data and flight track maps are included in Volume III.</p> <p>DISTRIBUTION OF THIS ABSTRACT IS UNLIMITED.</p>		

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Turbulence						
Clear Air Turbulence						
Critical Atmospheric Turbulence						
Atmospheric Turbulence						
HICAT (High Altitude Clear Air Turbulence)						

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